

AFRICAN APHIDIDAE.—PART II.*

By FRED. V. THEOBALD, M.A.

The following notes and descriptions of African plant-lice are based mainly on part of the large collection I have received from Mr. F. C. Willcocks, made in Egypt since 1907; specimens from Mr. Gerald Bedford, collected in the Transvaal and the Cape; and a small collection of spirit specimens without any colour notes sent to the Imperial Bureau of Entomology by Mr. T. J. Anderson from Nairobi, British East Africa. The collection made by Mr. Willcocks in recent years contains some hundreds of specimens, many in alcohol and many beautifully mounted, with field notes giving the living colours of most of the species. This very valuable collection seems to be almost complete for Egypt, for in a recent letter Mr. Willcocks tells me he is unable to find any new species. It contains a number of new insects and some well-known European and American species, including the corn pest, *Aphis maidis*, Fitch; the green pea louse, *Macrosiphum pisi*, Kalt.; *Macrosiphum sonchi*, L.; the so-called yellow clover aphid of America, *Callipterus trifolii*, Monell, which is here shown to be the *Aphis* (*Callipterus*) *ononidis* of Kaltenbach; the water-plant aphid of Europe and America, *Siphocoryne* (*Aphis*) *nymphaeae*, L.; and the European willow aphid, *Lachnus viminalis*, Boyer. The bean-root aphid, *Tychea phaseoli*, Pass., was also sent and the alate female is now described, as well as the first alate female of *Rhizobius*, apparently referable to Buckton's *Rhizobius graminis*. A large number of specimens in Mr. Willcocks' collection yet remain to be examined, including species from *Zizyphus*, *Duranta*, artichokes and sycamore figs; also others from Nairobi and some tubes of specimens sent by Dr. Aders from Zanzibar to the Imperial Bureau.

It may be once more pointed out that many specimens sent in spirit with no colour notes are almost impossible to identify with any degree of certainty. Colour is one of the main things in identifying these insects from old descriptions. Until definite structural characters are given we may have to rely on these. At present comparatively little is known of plant-lice in Europe and America, the only parts of the world in which they have been at all studied or even collected. With increasing information it appears that many species have a world-wide distribution, as for instance *Callipterus ononidis*, Kalt., which seems to be common to America, India, Europe and Egypt. Owing to the somewhat crude descriptions of many of the older species and the lack of any real structural characters, it is extremely difficult to say if any particular aphid coming from any part of the world is the same or distinct from one coming from elsewhere. Colour alone is of no value, it may cause considerable confusion in identifying these insects, so far as the original descriptions go. One instance will explain this. A wheat aphid sent by Mr. Willcocks from Egypt is undoubtedly *Toxoptera graminum*, but the colour notes he sends of this insect do *not* agree with those of this corn pest of Europe and America. On the other hand the aphid described

* For Part I. see Bull. Ent. Res., iv., p. 313.

here as *Siphocoryne splendens* might at first be mistaken for *S. avenae*, but its brilliant colours at once separate it, and then one can also detect some small, but marked, structural peculiarities.

I have been forced to add three new genera here, because they cannot be reasonably placed in any of the great number of genera which have been recently created, nor do they conform to the more natural genera of the older naturalists. One, which I call *Neotoxoptera*, because it comes near *Toxoptera*, is found on violets in the Transvaal; another, of most marked facies—*Saltusaphis*, the jumping aphid—is from sedges in Egypt; the third is a pine lachnid from the same country, for which I propose the name *Protolachnus*. Thirty-three species are here added to the scanty African fauna.

SECOND LIST OF AFRICAN APHIDIDAE.

- Macrosiphum pisi*, Kalt.
Macrosiphum sonchi, L.
Macrosiphum compositae, sp. nov.
Macrosiphum nigrinectaria, sp. nov.
Macrosiphum hederæ, sp. nov.
Macrosiphum rosaefolium, sp. nov.
Macrosiphoniella chrysanthemi, Del G.
Rhopalosiphum carduellinum, sp. nov.
Rhopalosiphum lactucellum, sp. nov.
Siphocoryne (? *Aphis*) *splendens*, sp. nov.
Siphocoryne (? *Aphis*) *nymphaeae*, L.
Aphis hederella, sp. nov.
Aphis pseudocardui, sp. nov.
Aphis leguminosae, sp. nov.
Aphis compositae, sp. nov.
Aphis punicella, sp. nov.
Aphis parvus, sp. nov.
Aphis maidis, Fitch.
Aphis laburni, Kalt.
Aphis medicaginis, Koch.
Aphis (?) *cynarae*, sp. nov.
Myzus tetrahodus, Walk.
Myzus asclepiadis, Pass.
Neotoxoptera violae, gen. et sp. nov.
Chaitophorus populus, L.
Callipterus ononidis, Kalt.
Saltusaphis scirpus, gen. et sp. nov.
Anoecia willcocksii, sp. nov.
Lachnus viminalis, Boyer.
Protolachnus tuberculostemmata, gen. et sp. nov.
Pemphigus globulosus, sp. nov.
Tychea phaseoli, Pass.
Rhizobius graminis, Buckton ?

Macrosiphum pisi, Kalt.

- Aphis pisi*, Kalt.
Siphonophora pisi, Koch, Buckton, etc.
Nectarophora destructor, Johnson.
Aphis pisum, Harris.
Nectarophora pisi, Sanderson.
Aphis lathyri, Mosley, Walker.
Aphis onobrychus, Boyer.
Acyrtosiphon pisi pisi, Mordw.

Kaltenbach, Mono. Pflanz., p. 23 (1843); Koch, Die Pflanz., p. 190, pl. xxxv, figs. 261–262 (1857); Buckton, Mono. Brit. Aph. i, p. 134, pl. xiv (1875); Mosley, Gard. Chron. i, p. 684; Walker, Ann. Mag. Nat. Hist. (2) ii, p. 421 (1848); Walker, Zoologist, vii, App. liii (1849); Walker, Cat. Homopt. B.M., iv, p. 966 (1852); Harris, Exposit. Engl. Ins., p. 66, pl. 17, figs. 10–12; Boyer de Fonscolombe, Ann. Soc. Ent. France, x, p. 169 (1841); Theobald, Journ. Eco. Biol., viii, p. 134, fig. 43 (1913); Mordwilko, Faune Russie Ins. Hemipt. i, p. 83 (1914).

EGYPT: Gizeh and Ghezireh (*F. C. Willcocks*). BRITISH EAST AFRICA: Nairobi (*T. J. Anderson*).—Europe generally and North America.

Food-plants.—Broad beans, iv.08, iii.09, v.09, Egypt; berseem and *Medicago* sp., iv.09, Egypt; sweet peas, Nairobi. On all culinary and ornamental peas (*Pisum*), wild everlasting pea (*Lathyrus sylvestris*), red clover (*Trifolium pratense*), white clover (*T. repens*), alsike clover (*T. hybridum*) and shepherd's purse (*Capsella bursa-pastoris*), in Europe and America.

Numerous alate and apterous females of this aphid in Mr. Willcocks' collection and specimens sent by Mr. T. J. Anderson agree exactly with the European green pea louse. This insect, which is destructive in Europe to cultivated peas and beans, and still more so to peas in North America, seems to be very abundant in Egypt, especially on berseem.

Macrosiphum sonchi, Linnaeus.

- Aphis sonchi*, L.
Siphonophora achilleae, Koch.
Siphonophora sonchi, Passerini, Buckton.
Siphonophora lactucae, Koch (*non* Fabricius).
Aphis serratulus, L. ?
Siphonophora alliariae, Koch ?

Linnaeus, Syst. Nat. ii, p. 735 (1767); Fabricius, Sp. Ins. ii, p. 390 (1781), Ent. Syst. iv, p. 220 (1794), Syst. Rhyng., p. 302 (1803), and Mant. Ins. ii, p. 317 (1807); Schrank, Fn. Boica, ii, 1, p. 120 (1801); Rossi, Fn. Etrusc., p. 265 (1790); Kaltenbach, Mono. Pflanz. i, p. 28 (1843); Walker, Ann. Nat. Hist. (2) ii, p. 197 (1849), and Zool. vi, pp. 2246–2248 (part), (1848); Koch, Die Pflanz., p. 160, figs. 217–219 (1857) (*alliariae* ?); Koch, *ibid.*, p. 159, figs. 215, 216 (1857) (*achilleae*); Buckton, Mono. Brit. Aph. i, p. 161, pl. xxviii (1875); Theobald, Journ. Eco. Biol. viii, p. 64, fig. 6 (1913).

EGYPT: Ghezireh, 20.iv.08 (*F. C. Willcocks*).

Food-plants. Thistles (*Carduus* sp.).

Alate and apterous females taken by Mr. Willcocks agree in all characters with the common European *Macrosiphum sonchi*, which has been found on the following plants in Europe:—*Sonchus oleraceus*, *Centaurea nigra* and cultivated varieties, *Serratula arvensis*, *Chrysanthemum segetum* and cultivated Chrysanthemums; *Lapsana communis*, *Picris hieracioides*, *Crepis biennis*, *Hieracium sylvestris*, *Lactuca* and various *Carduus*.

***Macrosiphum compositae*, sp. nov.** (fig. 1).

Apterous viviparous female.—Black; tawny to some extent at the sides in a few specimens; base of femora and most of the tibiae reddish brown. Antennae black, longer than the body, but not quite reaching to the tip of the cauda; first segment much larger than the second; the third long, with 80–90 sensoria scattered over its whole length, but scanty at the apex; fourth and fifth segments equal in length, shorter than the third; the sixth as long as four and five, its basal area about one-fourth the length of the fifth segment, the fourth and fifth imbricated and with the usual sensoria; hairs on the third faintly capitate. Two median capitate hairs in front on the head and three on the prominent frontal lobes. Eyes large and black. Abdomen with slightly capitate hairs. Cornicles black, very long, in many cases

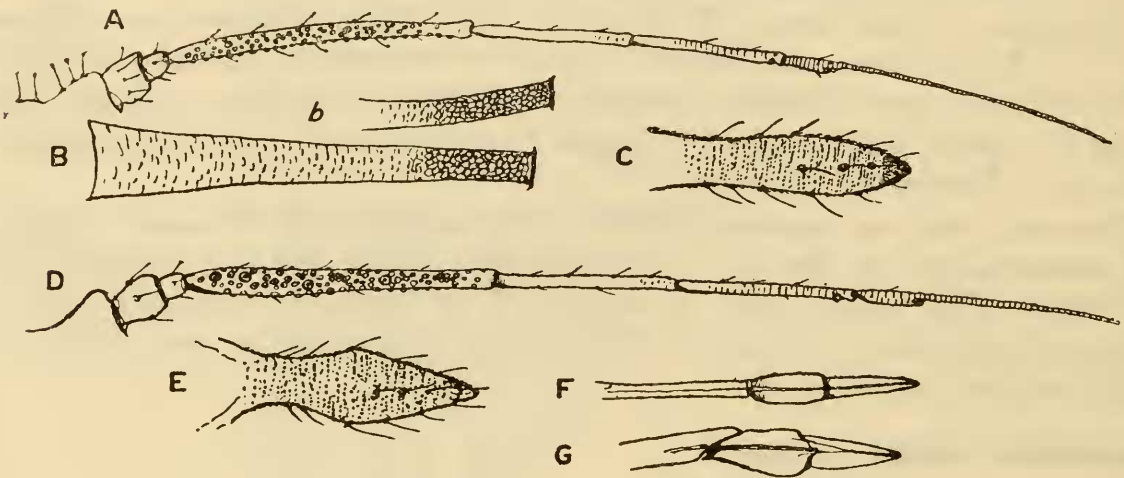


Fig. 1. *Macrosiphum compositae*, sp. n.; A, antenna of apterous ♀; B, b, cornicles; C, cauda. D, antenna of alate, ♀; E, cauda; F, proboscis of apterous ♀; G, proboscis of alate ♀.

quite half as long as the body, slightly expanding basally, and projecting well beyond the cauda, the apical area reticulate, the rest markedly imbricated, in some specimens they are straight, in others they are curved outwards. Cauda black, prominent, from about one-fifth to one-fourth the length of the cornicles, bluntly pointed and spinose, with six pairs of lateral hairs and three median dorsal ones. Anal plate black, with some prominent hairs. Legs long, especially the tibiae of the hind legs; femora black, except at the base; tibiae pale with black apex; tarsi black; femora and tibiae with short, stiff bristle-like hairs, especially numerous on the latter. Length, 3 mm.

Alate viviparous female.—Antennae longer than the body; black; basal segment very much larger than the second; the third longer than the fourth with 90–100 sensoria scattered over its whole length, some much smaller than others, the small

ones to some extent being in groups. Cornicles thicker than in the apterous female, black and similarly ornamented. The proboscis reaches past the base of the second pair of legs, the apical segment as long as the penultimate. *Length*, 2.8 mm.; wing expanse, 7.5 mm.

BRITISH EAST AFRICA: Nairobi (*T. J. Anderson*).

Food-plants. Compositae and a native plant called "Mocatha."

Described from a number of ♀♀, all of which were apterous but one, and this was damaged. It is evidently a black species, judging from the spirit specimens sent to the Bureau, which show tawny coloration at the sides of the body. The long jet-black cornicles vary somewhat in length and appearance, most being straight, but some are curved outwards at the tips. I know of no species like it in Europe or America. In alcohol it gave a deep claret stain. Its thick integument made it necessary to boil the specimens in caustic soda for nearly an hour before they could be cleared.

The species of Compositae upon which they were found was not mentioned.

Macrosiphum nigrinectaria, sp. nov. (fig. 2).

Alate viviparous female.—Apparently green, darker in the middle of the abdomen, with three dark pairs of lateral spots. Head light brown. Prothoracic lobes dark. Antennae longer than the body, two basal segments paler than the rest, which are dark

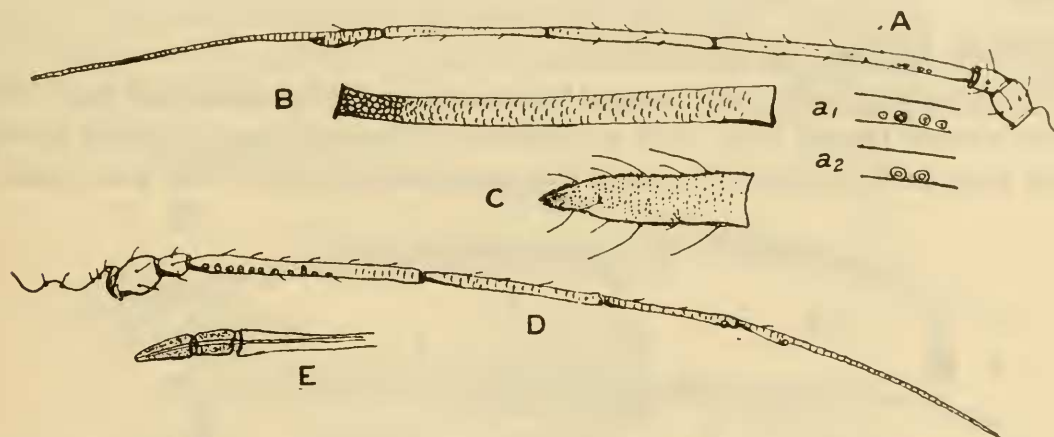


Fig. 2. *Macrosiphum nigrinectaria*, sp. n.; A, antenna of apterous, ♀; *a*₁, *a*₂, variations in the sensoria; B, cornicle; C, cauda. D, antenna of alate ♀; E, tip of proboscis.

brown; the first larger than the second; the third with a line of 11 to 13 sensoria on one side extending up to about one-third of its length from the apex; fourth shorter than the third; fifth shorter than the fourth; sixth as long as four and five together; the last three imbricated, and to some extent the apex of the third. Eyes large, black. Proboscis reaching nearly to the third pair of legs; last two segments dark, nearly equal in length. Wings with yellowish brown veins and stigma. Legs rather long, pale; apices of femora and tibiae and all the tarsi dusky. Cornicles long, cylindrical, black, reticulate at the apex, the rest imbricated; either straight or slightly curved outwards, about one-fourth the length of the body, projecting just beyond the cauda. Cauda pale, long, nearly half the length of the cornicles, bluntly pointed and turned upwards, with three pairs of large lateral chaetae and some smaller ones. Anal plate pale. *Length*, 2-2.5 mm.

Apterous viviparous female.—Green, somewhat darker in the middle. Antennae long, thin, green, tips of the third, fourth and fifth segments dark brown to black, the sixth darker with a still darker band at the junction of the nail and base of the flagellum. The first segment is larger than the second; the third has two to four sensoria near the base; the fourth and fifth nearly equal; the sixth as long as the fourth and fifth. Cornicles black, nearly one-third the length of the body, cylindrical, slightly expanding at the base, in some turned outwards at the tips, but usually straight, apex reticulate, the rest imbricated, reaching beyond the cauda. Cauda pale, long, about half the length of the cornicles, with six prominent lateral hairs and some others. Proboscis reaching to the third pair of legs, pale, last two segments dark, and about equal in length. Legs with smaller dark apical areas than in the alate female. Length, 2–2.5 mm.

BRITISH EAST AFRICA: Nairobi (*T. J. Anderson*).

Food-plant.—Garden peas and a native pea.

Described from several alate and apterous females. The black cornicles and pale long cauda are very marked. No colour notes were sent, but some examples had more or less preserved their general hue. In the spirit specimens I noticed that a pale band runs across between the cornicles and turns forwards on each side, but I am not sure if this is natural. There are also traces of small dark lateral spots on the dorsum of the abdomen in both forms.

Macrosiphum hederæ, sp. nov. (fig. 3).

Alate viviparous female.—Antennae thin and much longer than the body, arising from well-marked frontal lobes; first segment much broader than and rather more than twice as long as the second, the inner side somewhat serrated, with two small hairs

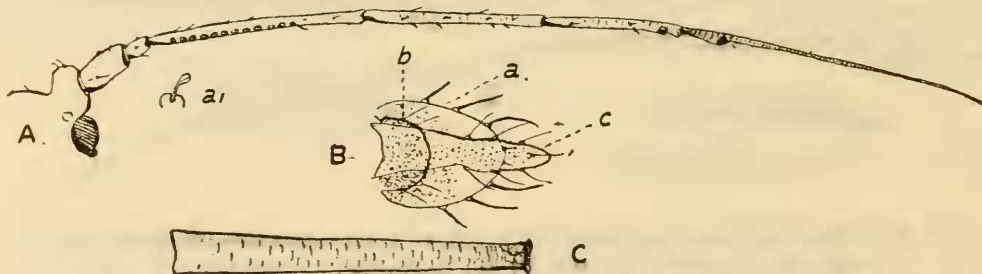


Fig. 3. *Macrosiphum hederæ*, sp. n., alate ♀; A, antenna; a_1 , antennal hair; B, a, sub-anal plate; B, b, anal plate; B, c, cauda; C, cornicle.

only; second segment small and barrel-shaped, with the usual hairs, both dark; third segment very dark, except just at the base where it is pallid, long, with 12 sensoria in a line on one side, not reaching to the apex; fourth a little shorter than the third and longer than the fifth, imbricated; sixth longer than the third, about as long as four and five, basal area about one-third the length of the fourth, with one large and several small sensoria in a group at its junction with the flagellum, imbricated; fourth and fifth paler than the third; sixth slightly darker than fourth and fifth; hairs short and blunt. Eyes large; stemmata marked. Proboscis reaching to near the base of the third pair of legs. Wings with normal venation; veins yellowish brown. Legs with dark coxae; the greater part of the femora dark, except just at the base;

tibiae pale with dark apex; tarsi dark; tibiae and apical area of the femora hirsute. Cornicles long, thin, cylindrical, slightly expanding basally; pale, apex dusky and marked with a few reticulations, remainder imbricated. Cauda pale, not quite half the length of the cornicles, bluntly pointed, spinose, with three pairs of lateral hairs and one median dorsal subapical one; anal plate dusky, with two pairs of lateral hairs, and beneath it a large dusky plate rounded on the posterior border, with three lateral pairs of long hairs, this plate not quite reaching to the end of the cauda. Length, 2.5 mm.; wing expanse, 7 mm.

CAPE PROVINCE: Cape Town, 23.x.14 (*G. Bedford*).

Food Plant. Ivy (*Hedera helix*).

Described from a single perfect alate female found with *Aphis hederella*, sp. n. Its colours had gone in the spirit, but it appears to be of dark hue. It can however at once be distinguished by the marked posterior plate beneath the cauda and anal plate, a character which perhaps might place it in a new genus. I have never seen anything resembling it in the APHIDIDAE before. Type in the writer's collection.

Macrosiphum rosaefolium, sp. nov. (fig. 4).

? *Siphonophora rosaecola*, Passerini.

Alate viviparous female.—Green; thoracic lobes dark; antennae dark brown, paler in places. Cornicles green; cauda green; anal plate dusky. Legs green, with dark apices to the femora and tibiae and dark tarsi. Antennae as long as the body, arising from prominent frontal tubercles; the basal segment larger than the second; the third longer than the fourth and about as long as the sixth, with 17–20

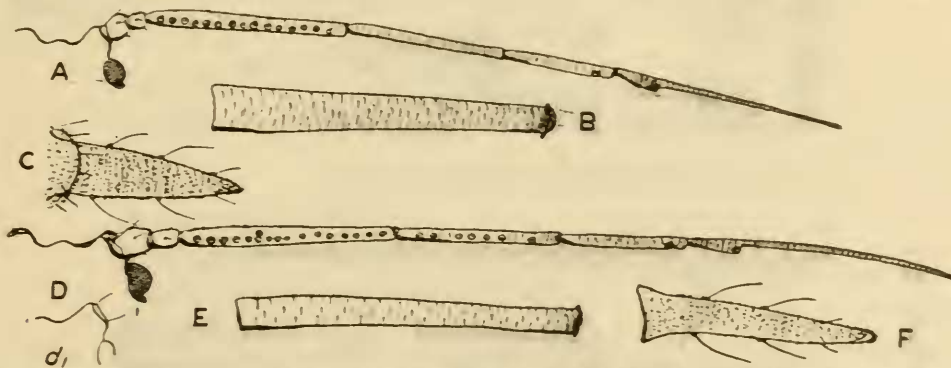


Fig. 4. *Macrosiphum rosaefolium*, sp. n.; A, antenna of apterous ♀; B, cornicle; C, cauda. D, head and antenna of alate ♀; d, head, showing larger frontal tubercle; E, cornicle; F, cauda.

sensoria, more or less in a line along its whole length; fourth segment longer than the fifth, with 5–9 sensoria in a line; sixth not quite as long as the fourth and fifth together, its basal area about one-fifth the length of the flagellum; all the segments faintly imbricated; the third to the sixth darkest, the former pale just at the base; apices of the fourth and fifth slightly darkened; hairs few, very short and blunt. Head slightly projecting in the median line in front, with a few short hairs, blunt in form. Eyes large and black. Proboscis scarcely reaching the second coxae, pale, its tip dusky. Cornicles green, dusky at the tips, long, thin, cylindrical, imbricated, with one or two striae at the apex; not as long as the third antennal segment. Cauda long, narrow, lanceolate; about two-thirds the length of the cornicles and projecting

well beyond them, with three pairs of lateral hairs, the apical pair short; slightly spinose. Anal plate dusky, spinose; beneath it the abdomen is black. Legs rather long and thin, femora pale at the base, dark apically; tibiae pale, except at the apex, with numerous short spine-like hairs; tarsi dark. Wings with yellowish brown stigma and veins, the latter darker than the stigma, the membrane slightly tinged with yellowish brown. *Length*, 2-2.3 mm.

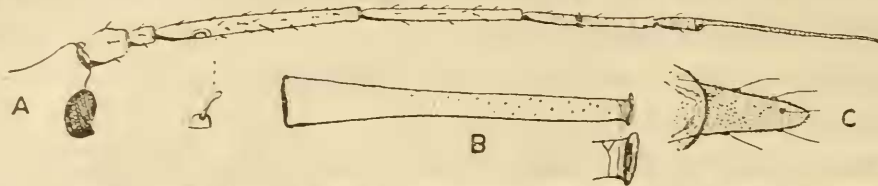


Fig. 5. *Macrosiphum rosaeollae*, sp. n., apterous ♀; A, head and antenna; B, cornicle; C, cauda.

Apterous viviparous female.—Green; apices of the third to fifth antennal segments and all the sixth brown; apices of the tibiae and the tarsi brown; tips of the cornicles dusky. Eyes reddish. Antennae as long as the body, the basal segment larger than the second, arising from prominent frontal tubercles; the third segment as long as or slightly longer than the sixth and much longer than the fourth, with a row of 15 to 18 sensoria in a line along its whole length, slightly darkened in this region and at the apex; fourth segment a little longer than the fifth, both darkened

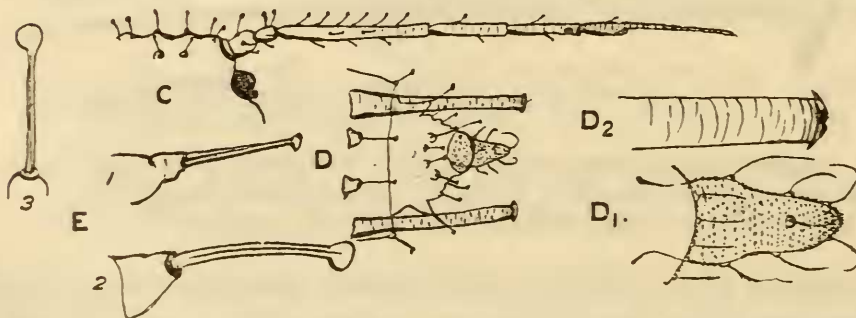
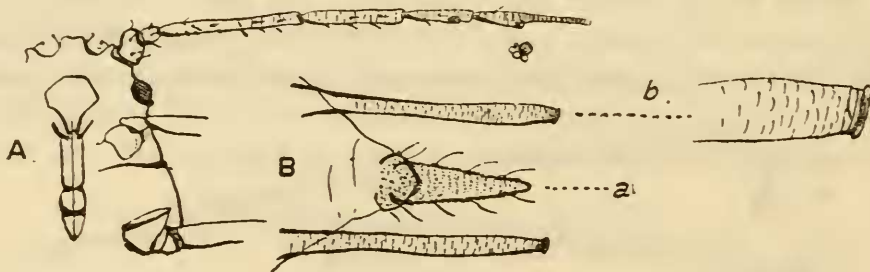


Fig. 6. *Myzus rosarum*, Kalt., apterous ♀; A, head and antenna; B a, cauda; B b, cornicles.

Myzus rosarum, Buckt., apterous ♀; C, head and antenna; D, cauda and cornicles; E, body hairs.

at the apex; sixth a little shorter than the fourth and fifth, its basal area about one-fifth the length of the flagellum; all the segments imbricated. Proboscis pale, darkened just at the apex, nearly or quite reaching the base of the second pair of legs. Cornicles green, dusky at the apex, long, thin, cylindrical, slightly expanded at the base and in a few specimens somewhat irregular in form, imbricated, with two striae at

the apex; nearly as long as the third antennal segment. Cauda long, narrow, green, with three pairs of lateral bristles, the apical pair short; about three-fourths the length of the cornicles. Legs moderately long, green, except for the apices of the tibiae and tarsi which are brown; tibiae with short hairs, anal plate dusky. Length, 2-2.3 mm.

EGYPT: Ghezireh, Gizeh and Cairo, 20.iv.03, v.10, 12.iii.14 (*F. C. Willcocks*).

Food-plants. Roses.

Described from a series of apterous females and three alate females. It is a marked species, easily distinguished from any other rose *Macrosiphum* by the sensorial structure of the antennae in both forms of female and by the markedly short third pair of caudal hairs.

Another species of green *Macrosiphum* in Britain (*rosaeollae*) differs in having only 1 to 3 sensoria on the third antennal segment in the apterous female. From *M. rosae*, L., it can at once be recognised by the green cornicles.

It might be Passerini's *Siphonophora rosaeicola*, but his description is equally applicable to the British species (*rosaeollae*).

Appended here is a list of the Aphides which occur on the rose from all parts of the world.

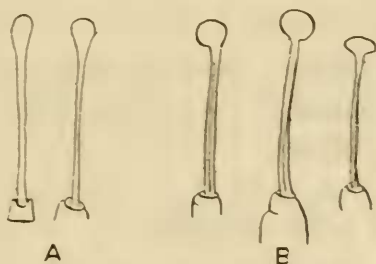


Fig. 7. Capitulate hairs of:
A, *Myzus rosarum*, Kalt.; B, *M. rosarum*, Buckton.

LIST OF ROSE APHIDES.

- Macrosiphum rosae*, L.
- Macrosiphum rosaefolium*, sp. nov.
- Macrosiphum rosaeollae*, sp. nov.
- Macrosiphum rosaeicola*, Pass.
- Macrosiphum solanifolii*, Ashmead.
- Macrosiphum rosaeformis*, Das, sp. nov.
- Myzus rosarum*, Kalt.
- Myzus neorosarum*, nom. nov. (*rosarum*, Buckton).
- Myzus tetrahodus*, Walker.
- Aphis dirhodum*, Walker.
- Hyalopterus trirhodus*, Walker.
- Hyalopterus dilineatus*, Buckton.
- Lachnus rosae*, Mordwilko.

Of these I have not seen *Macrosiphum solanifolii*, a potato aphid recorded from *Rosa* by Miss Edith Patch in America, nor Mordwilko's *Lachnus rosae*. The species *Macrosiphum rosaeformis* was sent me from India by Mr. Das, with a note that probably Buckton's record of *Macrosiphum rosae*, L., from India was an error, as this species resembles *rosae* closely in appearance, but is very different in antennal ornamentation. He has sent me this Aphid, but I am waiting for him to describe it.

TABLE OF ROSE APHIDES.

I. Cornicles long.

A. Frontal lobes large (*Macrosiphum*).

- a. Cornicles black *rosae*, L.
 aa. Cornicles green
 b. Apterous ♀ antennae, third segment with many sensoria .. *rosaefolium*, sp. n.
 bb. Apterous ♀ antennae, third segment with 3-5 sensoria .. *rosaeollae*, sp. n.
- B. Frontal tubercles very small.
- c. Antennae moderately long (*Myzus*).
 d. Capitate hairs on head, not on body *rosarum*, Kalt.
 dd. Capitate hairs on head and body
 Cornicles always green .. *neorosarum*, nov. nom.
 Cornicles black in alate female *tetrahodus*, Walker.
 cc. Antennae of apterae very short, only $\frac{1}{4}$ length of body (*Aphis*) .. *dirrhodus*, Walker.

II. Cornicles short (*Hyalopterus*).

- e. Apterous ♀ green; alate ♀ green, with head, thoracic lobes and patch on body black *trirrhodus*, Walker.
 ee. Apterous ♀ green with black markings; alate ♀ body all green *dilineatus*, Buckton.

III. Cornicles cone-shaped (*Lachnus*) *rosae*, Mord.**Macrosiphoniella chrysanthemi**, Del Guercio (fig. 8).*Macrosiphoniella bedfordi*, Theobald.

Del Guercio, Redia, vii, p. 332, fig. 30 (1911); Theobald, Bull. Ent. Res., iv, p. 318, fig. 4 (1914).

Alate viviparous female.—Deep red and black, abdomen deep red. Antennae slightly longer than the body, the two basal segments black, the first much larger than the second; the third long, nearly as long as the sixth, with 28 to 32 sensoria spread over the whole length, some large, and the lateral ones projecting, giving a marked tuberculate appearance; the fourth segment about as long as the fifth, with 6 to 7 sensoria; the sixth as long as the fourth and fifth together, its basal area about one-third the length of the fifth, flagellum long; last three segments imbricated; hairs simple. Cornicles thick and black, rather short, not so expanded basally as in the apterous female, most of the surface markedly reticulated, becoming at the base densely imbricated. Cauda black, as long as or slightly longer than the cornicles, with four pairs of long lateral hairs and two median dorsal ones. Anal plate black, spinose; wings tinged with brown and somewhat darkened along the veins. Legs with the base of the femora and most of the tibiae pale. Proboscis with the apex black, last two segments nearly equal. Length, 2.8-3 mm.

BRITISH EAST AFRICA: Nairobi (*T. J. Anderson*). TRANSVAAL: Onderstepoort, 6.iv.13 (*G. Bedford*). ENGLAND: Wye, Kent, 1.x.14 (*F. V. Theobald*); Little Hadham, Herts, 17.iii.15 (*F. V. Theobald*). ITALY (*Del Guercio*).

Food-plant. Chrysanthemums.

Since I have found this species in Europe and have compared it with the African specimens and have obtained alate females from Nairobi and Kent, I find that they agree so closely with Del Guercio's *M. chrysanthemi* that I have sunk *bedfordi* as a synonym of that species.

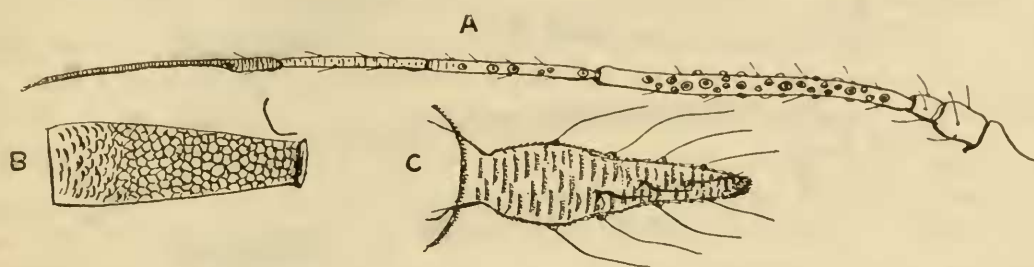


Fig. 8. *Macrosiphoniella chrysanthemi*, Del G., alate viviparous ♀; A, antenna; B, cornicle; C, cauda.

The apterae are a deep blackish-red to almost black and very shiny. The alatae are very sluggish. They cluster on the top shoots of cultivated chrysanthemums, both in the open and under glass, and do a considerable amount of damage, distorting and stunting the flower buds. In England they seem to occur from September to November in the open and right through the winter under glass.

***Rhopalosiphum carduellinum*, sp. nov.** (figs. 9, 10).

Alate viviparous female.—Thorax and pleurae black. Abdomen green, with two pairs of elongated black spots in front, then a large dark area, four laterally elongate black spots on each side before the cornicles, the last the smallest, a small dark patch before the cauda, which with the anal plate is black. Antennae longer than the body, dark, the first segment a little longer and much wider than the second; the third long, but not quite as long as the sixth, base paler, with 37 to 40 sensoria spread over the whole segment, some on each side projecting, giving a fine tuberculate appearance; fourth segment about two-thirds the length of the third, with 20 to 25 sensoria over its whole length; fifth a little shorter than fourth, with a line of six sensoria and two smaller basal ones; sixth with the basal area less than one-fourth the length of the flagellum, all the segments imbricated, the flagellum markedly annulated, with a few short, scanty hairs. Proboscis with the last two segments dusky, reaching just past the second pair of legs. Legs moderately long, apical half of femora dark and a large dark area on the apex of the tibiae; tarsi dark; tibiae with fine, small hairs. Wings normal, with pale yellowish-brown veins and stigma. Cornicles black, thin, slightly swollen in the middle, more than half as long as the third antennal segment, apex with a few transverse lines, rest imbricated. Cauda prominent, bluntly pointed, nearly half the length of the cornicles, with three pairs of lateral hairs and one dorsal subapical one. Anal plate black and a marked black spot below it. *Length*, 2.5 mm.

Apterous viviparous female.—Pale green; eyes red. Apices of the antennal segments and all the sixth brown. Tibiae, tarsi and the apex of the femora brownish;

in some specimens the basal two-thirds of the tibiae are pale. Antennae longer than the body; the first segment broader and a little longer than the second; the third not quite as long as the sixth, with a line of 5 to 6 sensoria; the fourth and fifth about equal, the latter with a normal subapical sensorium; the sixth a little longer than fourth and fifth; the third to the sixth imbricated, the flagellum of the latter annulated, with a few small hairs. Cornicles darker green than rest of body, slightly

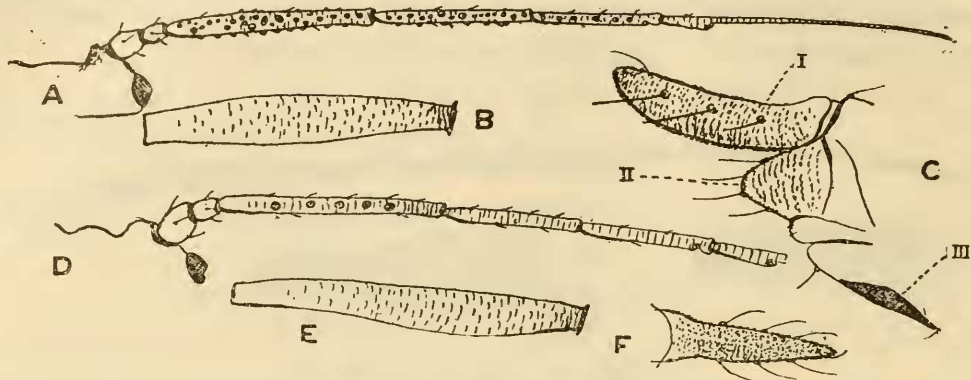


Fig. 9. *Rhopalosiphum carduellinum*, sp. n.; A, antenna of alate ♀; B, cornicle; C-I, cauda; II, anal plate; III, ventral spot. D, antenna of apterous ♀; E, cornicle; F, cauda.

darkened at the tip, a little less than one-third the length of the body, slightly swollen on the apical half, a few transverse lines on the apex, the rest faintly imbricated. Cauda green, long and bluntly pointed, when exerted rather more than half the length of the cornicles; three pairs of lateral hairs, one curved subapical, one dorsal and minutely spinose. Anal plate green. Proboscis short, not reaching the second pair of legs, broad and dusky at the apex. The tibiae bear minute hairs. *Length*, 2 mm.

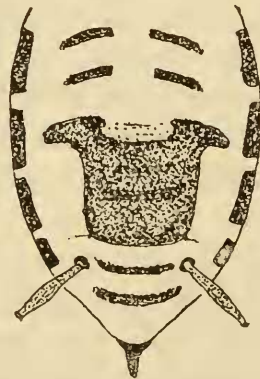


Fig. 10. *Rhopalosiphum carduellinum*, sp. n.; abdomen of alate ♀.

TRANSVAAL: Onderstepoort, 28.vii.14 (*G. Bedford*).

Food-plant. Thistles (*Carduus* sp.).

Described from two alate females and two apterous females, with many larvae and two nymphae. In the latter the cornicles are shorter and rather thicker than in the females and the wing-pads slightly darker than the rest of the body. I can find no species agreeing with this insect and I have seen nothing like it on thistles, except Walker's *Aphis carduinum*, which it certainly is not.

Types in the writer's collection.

Rhopalosiphum lactucellum, sp. nov. (figs. 11, 12).

Alate viviparous female.—Head shiny black; eyes very dark red. Antennae black; third segment pale at the base, as long as the body; first segment longer and wider than the second; the third nearly as long as the sixth, with 13–18 sensoria along its whole length, mainly on one side; fourth shorter than third and longer than the fifth; sixth about as long as four and five; fourth to sixth imbricated; a sub-apical sensorium on five and the usual group at base of the flagellum of the sixth (no sensoria on four as in *R. lactucae*). Pronotum greenish, with black collar, shiny; in some individuals the colour is obscure brownish-ochreous and the collar black; mesothorax with shiny black lobes, brownish at the sides and wing roots. Abdomen green, dark green to olivaceous green, with dusky or very dark olivaceous markings as shown in fig. 11. In some specimens the abdomen is obscure yellowish-green. Underside of thorax obscure ochreous brown, sternal plates shiny black; venter dull green. Cornicles dusky or dark olivaceous, median part distinctly paler in some, rather long, slightly swollen on the apical half, faintly imbricated. Cauda dusky to dark olivaceous, quite half as long as the cornicles, acuminate, spinose, with three pairs of lateral hairs. Anal plate dusky. Legs with basal half of femora pale or brownish, apical portion black; tibiae ochreous with black apices; tarsi black; tibiae hairy. Wings iridescent, insertions yellowish; cubitus yellowish; stigma smoky; costa and veins dusky. Proboscis about reaching the 2nd coxae, pale, with dusky apex. *Length*, 2 mm.

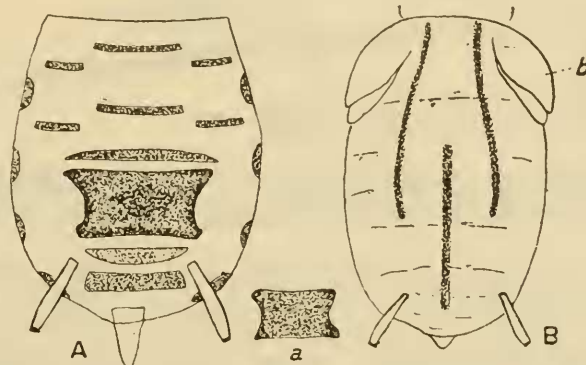


Fig. 11. *Rhopalosiphum lactucellum*, sp. n.; A, abdominal markings of alate ♀; a, median patch in some examples; B, abdomen of nymph; b, wing-pads.

Apterous viviparous female.—Pale yellowish-green to yellow tinged with green. Head pale yellowish-green. Eyes dark brown to black. Antennae about as long as the body; two basal segments of the same colour as head; third and fourth pale; fifth pale, but the apex smoky; sixth smoky on basal area, paler beyond; basal segment larger than second; third about as long as sixth; fourth shorter than third and longer than fifth; sixth about as long as four and five, its basal area about one-third the length of flagellum; fourth to sixth imbricated; a few hairs. Pronotum pale yellowish-green. Meso- and meta-notum and abdomen pale yellowish-green, of a slightly darker hue than head and pronotum; indications of a dorsal longitudinal line of a darker green colour and faint indications of a lateral line or more sub-median line of same colour. Apex of abdomen yellowish, tinged with green. Proboscis reaching the second coxae, tip black. Cornicles slightly swollen on apical half, colourless except at the tip where they are dusky, imbricated, the dark tip with well marked

striae, one very distinct. Cauda prominent, bluntly acuminate, about half as long as cornicles, pale, with three hairs on each side. Anal plate pale. Femora greenish to almost colourless; tibiae colourless, apices and tarsi brown. Venter pale yellowish green. Skin roughened, sometimes shiny. *Length*, 2 mm.

Nymph.—Green or pinkish; head pale yellowish-green; eyes very dark red, stemmata reddish. Antennae with the two basal segments of the same colour as the head; third and fourth colourless; fifth colourless, with smoky apex; sixth smoky. Pronotum pale green, tinged with yellow; mesonotum very pale yellowish-green; base of wing-buds very pale, apex pale ochreous or smoky. From the anterior margin of the mesonotum two prominent sub-median darkish green lines continue back to about the middle of the abdomen. Abdomen pale yellowish-green, a median darker green stripe of the same colour on the two submedian lines (fig. 11, B). Cornicles colourless, apex dusky. Femora pale greenish; tibiae colourless. In some individuals the head and thorax may be yellow and the stripes green, in others the head, thorax and abdomen are pink to salmon pink.

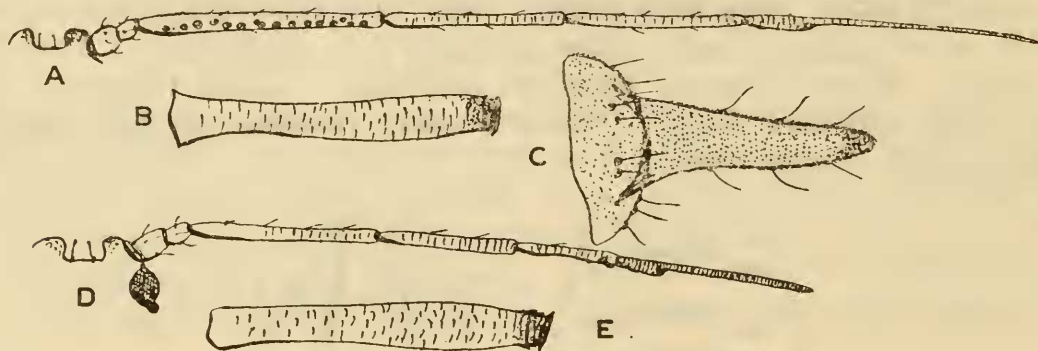


Fig. 12. *Rhopalosiphum lactucellum*, sp. n.; A, head and antenna of alate ♀; B, cornicle; C, cauda. D, head and antenna of apterous ♀; E, cornicle.

Larva.—Head yellowish green; eyes dark or very deep red. Antennae colourless, with the last segment smoky. Body pale green. Cornicles colourless, with dusky apical ring. Femora faintly greenish; tibiae colourless; tarsi dusky. Some larvae are all yellowish in colour, and others which are going to become nymphs are pink at a very early age. They also exhibit the three dorsal green lines at an early stage.

EGYPT: Gizeh, 11.iii.1910 (*F. C. Willcocks*).

Food-plants. Lettuce (*Lactuca*) and peach.

Described from several alate ♀♀, several apterae and nymphae. Colours noted by Mr. Willcocks from live specimens. This insect resembles at first sight *Rhopalosiphum lactucae*, but differs in the antennae and in the much thinner cornicles. Mr. Willcocks notes that in general appearance this lettuce aphid resembles one he found in the same locality on peaches, which are probably the alternate plant host.

Siphocoryne splendens, sp. nov. (fig. 13).

Apterous viviparous female.—Green and bright dark crimson. Head dusky olivaceous to obscure olivaceous orange; in some specimens slightly farinose; eyes black. Antennae smoky black, pale at the junction of the segments 3 and 4, and 4 and 5. Thorax dark olivaceous green or dark green. Abdomen, in front of cornicles

dull olivaceous green or obscure orange mottled with dull olivaceous green; area between and surrounding base of cornicles crimson; apex of abdomen pale olive-green, in all cases with a dusky band near the apical margin of the last segment. Cornicles, cauda and anal plate black. Under side green; venter of abdomen sometimes obscure orange. Legs black; in some specimens inclined to be olivaceous; coxae smoky black. Proboscis greenish, with dark apex and base. Antennae much shorter than the body; first segment much broader and slightly longer than the second; third short, but about as long as the small fourth and fifth together; the latter with a marked sub-apical sensorium; the sixth as long as the third, fourth and fifth, basal area small, about two-thirds the length of the fifth, with a large sensorium; the third with many long hairs; the fourth and fifth with two or three long hairs, and one long one on each side of basal area of sixth; whole of the sixth imbricated. Proboscis broad, reaching past the second pair of coxae. Body hairs few, scattered and simple. Cornicles a little longer than third antennal segment, rather broad, constricted at the apex, mouth flared, markedly imbricated. Legs rather short and thick, femora and tibiae with many rather long hairs. *Length*, 2-2.5 mm.

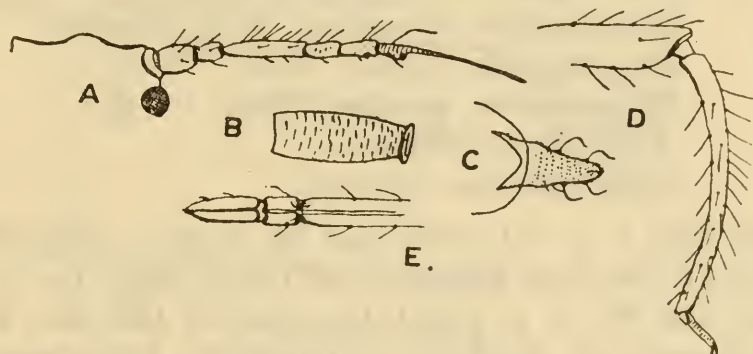


Fig. 13. *Siphocoryne splendens*, sp. n., apterous ♀; A, head and antenna; B, cornicle; C, cauda; D, mid-leg; E, apex of proboscis.

Alate viviparous female.—Description from field-note by F. C. Willcocks. “Head black, shiny. Eyes very deep blackish-brown. Antennae black. Prothorax dark olivaceous-green with shiny black collar. Thoracic lobes shiny black. Abdomen obscure olivaceous green, shiny. Cornicles brownish to dusky. Cauda of same colour as abdomen. Wings with yellowish green insertions; stigma pale smoky; cubital vein greenish; costa and oblique veins dusky. Legs with black femora; tibiae ochraceous with black points; tarsi black.

“*Larva*.—Young. Orange, but of a darker or redder hue between the cornicles. Two slightly dusky areas on head, with pale orange lines between; eyes black. Legs and antennae smoky. Cornicles dusky.

“*Mature*.—Head inclined to olivaceous, green at sides. Thorax and abdomen green, reddish between and around base of cornicles. Antennae and legs dark smoky. Cornicles dark. Some larvae have a general dull reddish hue.

“*Nymph*.—Head obscure orange to dusky tinged with orange; eyes black; antennae dull black. Thorax obscure orange, tinged with green or dull orange. Base of wing-buds pale greyish-green, apices smoky. Abdomen dull orange, reddish between and around base of cornicles. Cornicles black. Cauda black. Legs dull black; first femora inclined to dull brownish.”

EGYPT: Gizeh, 18.ii.08 (*F. C. Willcocks*).

Food-plant. Wheat.

Mr. Willcocks describes this species as "a very handsome green and crimson insect" inhabiting the lower part of the stems of wheat and the adventitious roots and also found on a spiky creeping grass, a common weed of agricultural land.

Its marked characters are the brilliant coloration, the presence of long hairs on the antennae and legs, and the shortness of the third to fifth antennal segments. In some respects it resembles Forbes' *Aphis maidisradicis*, but this species is all green and not the bright green and crimson of this one found in Egypt. Moreover, in comparing American specimens it is seen to be quite distinct.

I have not seen the alate female, so give Mr. Willcocks' notes on this form and also on the larva and nymph.

Siphocoryne nymphaeae, L.

Aphis nymphaeae, L.

Aphis plantarum aquaticum, F.

Rhopalosiphum nymphaeae, Koch, Passerini.

Rhopalosiphum alismae, Koch.

Rhopalosiphum najadum, Koch.

Aphis butomi, Schrank.

Aphis aquaticus, Jackson.

Linnaeus, *Syst. Nat.*, ii, p. 714 (1767), and *Fn. Suec.*, p. 983 (1789); Fabricius, *Ent. Syst.*, iv, p. 214 (1794), *Syst. Rhyng.*, p. 297 (1803), *Mant. Ins.*, ii, p. 315 (1807); Boyer, *Ann. Soc. Ent. Fr.*, x, p. 166 (1841); Amyot, *Ann. Soc. Ent. France*, (2) v, p. 478 (1847); Schrank, *Fn. Boica*, ii, 1, p. 117 (1801); Kaltenbach, *Mono. Pflanz.*, p. 104 (1843); Walker, *Ann. Nat. Hist.* (2) v, p. 26 (1850), *List Homopt. B. M.*, iv, p. 984 (1852); Koch, *Die Pflanz.*, p. 26, figs. 33-35 (1857); Passerini, *Aphid. Ital.*, p. 21 (1863); Ferrari, *Spec. Aphid. Liguriae*, p. 217 (1872); Buckton, *Mono. Brit. Aph.*, ii, p. 12, pl. xli (1877); Schouteden, *Mém. Soc. Ent. Belg.*, xii, p. 236 (1892); Riley, *Insect Life*, v, p. 236 (1893); Osborn & Serrine, *Proc. Iowa Acad. Sci.*, i, 3, p. 98 (1892); Cowen, *Bull. Agri. Exp. Sta. Colorado, Tech. Ser. 1*, p. 123 (1895); Cockerell, *Science*, xxii, p. 764 (1905); Jackson, *Ohio Nat.*, viii, p. 243 (1908); Davis, *Ent. News*, xxi, p. 245 (1910); Theobald, *Entomologist*, xlv, p. 18 (1911).

EGYPT: Gizeh, 5.vi.1914 (*F. C. Willcocks*).

Food-plant. Lotus Water Lily.

Mr. Willcocks found this common water-plant aphid on the upper sides of the leaves and on the leaf and flower stalks and flower buds of the lotus lily. It is common in Europe and America and occurs on *Nymphaea lutea*, *N. alba*, *Alisma plantago*, *Potamogeton natans*, *Sagittaria sagittifolia*, *Utricularia vulgaris*, *Butomus umbellatus*, *Fosteria cordata*, *Hydrocotyle vulgaris*, *Hydrocharis morsusranae*, *Lemna gibba*, *Pontederia*, *Azolla filiculoides*, *Marsilea quadrifolia*, *Salvinia natans*, *Ranunculus sceleratus*, *Typha latifolia*, *Sparganium ramosum*, *Acarus calamus*, *Saururus cernus* and *Menyanthes trifoliata* in Europe. In America also on *Philotria canadensis*, *Nymphaea odorata*, *Sagittaria variabilis*, *Najas flexilis*, *Elodea canadensis*, *Richardia africana*, *Juncus* sp., *Calla* sp., and *Myriophyllum verticillatum*.

***Aphis hederella*, sp. nov. (fig. 14).**

Alate viviparous female.—Evidently a dark-coloured species, with paler abdomen. Antennae much shorter than the body; the two basal segments dark; the third dark, except the base; apex of fourth and fifth dark and all the sixth; the basal segment wider than, but of almost the same length as the second; the third a little longer than the fourth, but shorter than the sixth, with a row of 6 round sensoria on one side, extending from near the base to the apex; fourth and fifth equal; the sixth as long as the fourth and fifth, its basal area not quite half the length of the flagellum; the usual sensorium at the apex of the fifth and at the apex of the nail on the sixth; segments all imbricated. Head flat in front; eyes large; stemmata, 3. Proboscis reaching past the second pair of legs. Wings ample, with brown veins and stigma. Cornicles rather short, black, expanded basally and with flared tips, about the length of the cauda, imbricated. Cauda black, spinose, with three long hairs on each side. Anal plate black. Legs pale, with dark apices to the tibiae, dark tarsi and traces of darkening on the apices of the femora; a few hairs on the tibiae and apex of femora, one on the basal segment of the tarsi and one near the apex of the last segment, which is imbricated. *Length*, 1.5–1.8 mm.

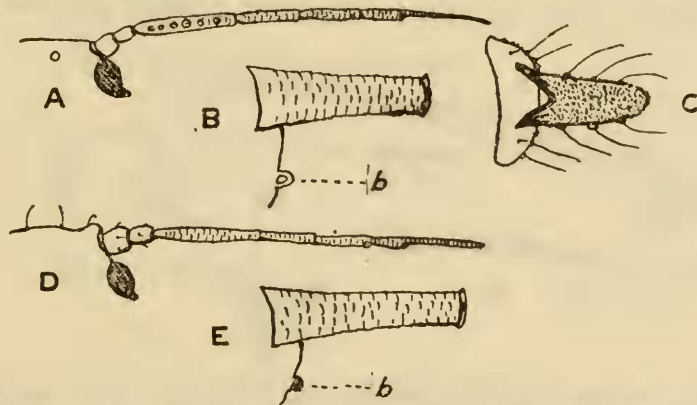


Fig. 14. *Aphis hederella*, sp. n.; A, antenna of alate ♀; B, cornicle; b, papilla between cornicle and cauda; C, cauda. D, antenna of apterous ♀; E, cornicle.

Apterous viviparous female.—Dark. Antennae shorter than the body, the two basal segments dark; the third and fourth and base of the fifth pale, its apex and the sixth dark; basal segment much wider than, but about the same length as, the second; the third longer than the fourth, but not quite as long as the sixth; fourth and fifth equal, the latter with a sub-apical sensorium; the sixth with the basal area half as long as the flagellum, with the usual sensoria at their junction; all the segments from the third imbricated. Head rounded in front, with a few hairs. Cornicles deep black, thick, slightly expanded basally, imbricated, longer than the cauda. Cauda and anal plate black, spinose, the former with three pairs of long lateral hairs. A distinct lateral tubercle on each side of the prothorax, a smaller one between the second and third pairs of legs and a dark one between the cornicles and cauda. Legs rather short and thick; tibiae with hairs; one on the basal tarsal segment and two on the last segment, which is imbricated. *Length*, 1–1.6 mm.

CAPE PROVINCE: Cape Town, 23.x.13 (*G. Bedford*).

Food-plant. Ivy (*Hedera helix*).

Described from a number of alate and apterous females. No colour notes were sent, but from spirit specimens it seems to be a dark-coloured species. It is much smaller and more fragile than the European ivy aphid (*Aphis hederæ*, Kalt.) and it does not colour alcohol deep reddish-brown as does that species. There were a number of nymphæ also, very dark, with dark wing-pads and the hind tibiae with rather longer hairs than in the apterae or alatae.

Aphis hederæ has many sensoria on segment 3 of the antennæ and some also on 4 and 5; the head is not flat and the cornicles are longer. So far as I have traced, *Aphis hederæ*, Kalt., may be the same as *Aphis (Myzus) lychnidis*, Kalt. At least I find that one can transfer *hederæ* in spring to the Red Campion and that winged *lychnidis* will live on ivy.

***Aphis pseudocardui*, sp. nov. (fig. 15).**

Apterous viviparous female.—Dark; third segment of the antennæ and most of the tibiae pale. Head slightly curved in front; eyes large. Antennæ not quite half the length of the body, the two basal segments black; the basal one wider than the second, but of the same length; the third about as long as the sixth, pale, sometimes slightly dusky at the apex, with 1–3 marked circular sensoria; the fourth and

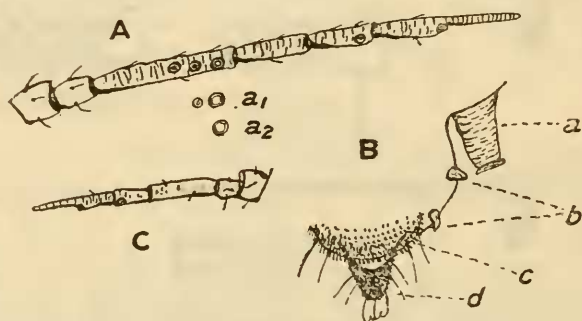


Fig. 15. *Aphis pseudocardui*, sp. n., apterous ♀; A, antenna; a_1 , a_2 , variations of sensoria; B, a , cornicle; B, b , c , lateral papillae; B, d , cauda; C, antenna of larva.

fifth about equal, each about half the length of the third; the fifth with a sub-apical sensorium; the sixth with the basal area as long as or slightly longer than the blunt flagellum; the last three segments dark; all imbricated. Proboscis dusky at the apex, acuminate, reaching nearly or quite to the second coxae. Legs moderately long and thick; the femora pale at the base; the tibiae hairy, pale, except at the apex; tarsi and ungues dark. Cornicles black, short and thick, a little more than half the length of the third antennal segment, expanding basally, imbricated. Cauda and anal plate black; the former triangular, the apex blunt and rounded, spinose, with two pairs of lateral hairs and three at the apex bent at their tips; anal plate very spinose, with a few long hairs. Abdomen with two marked lateral papillae between the cornicles and cauda, one between the mid and hind legs, near to the latter, and one on each side of the pronotum. Length, 1.5–2 mm.

TRANSVAAL: Onderstepoort, 28.vii.14 (*G. Bedford*).

Food-plant. Thistles (*Carduus* sp.).

Described from several specimens sent in alcohol. It differs from *Aphis cardui*, F., in the much shorter and thicker cornicles. The two lateral tubercles between the

cornicles and cauda are very marked. The presence of sensoria on segment 3 of the antennae is also characteristic; they vary from one to three, the latter being the usual number. I know of no other related species showing this peculiarity.

Judging from the alcohol specimens sent, this insect is black to dark brown. It was found densely clustering on the thistle leaves in colonies, curling them up, and also encrusting the stalks.

***Aphis leguminosae*, sp. nov.** (fig. 16).

Alate viviparous female.—Black; abdomen very dark brown or dull olivaceous, with black transverse median bars and lateral spots. Antennae shorter than the body, the two basal segments dark, third to fifth paler, the apex of fifth and sometimes the fourth darkened; sixth dark; basal segment larger than the second; the third a little longer than the fourth, with from 3 to 7 sensoria; the fifth of the same length as the fourth, sometimes slightly shorter, with a single sub-apical sensorium; sixth longer than the third and not quite as long as the fourth and fifth, its basal area about half the length of the flagellum, with the usual sensoria at their junction; all

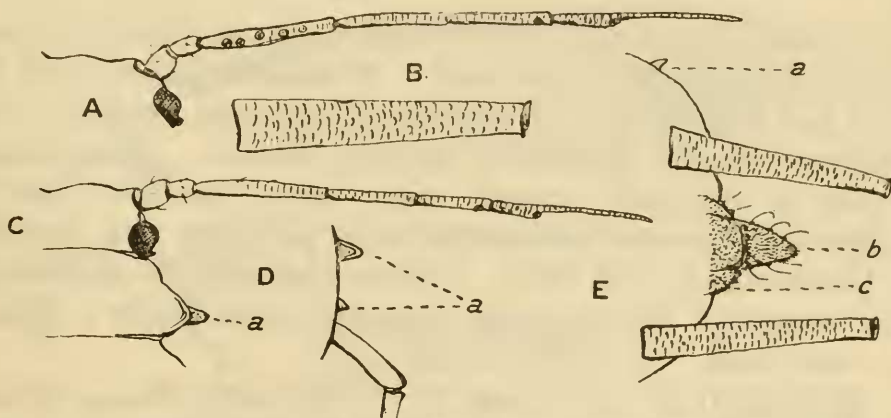


Fig. 16. *Aphis leguminosae*, sp. n.;
A, head and antenna of alate ♀; B, cornicle. C, head and antenna of apterous ♀, (a) prothoracic tubercle; D, lateral abdominal tubercles between mid and hind legs; E, cauda and cornicles, (a) lateral abdominal tubercle, (b) cauda, (c) anal plate.

the segments imbricated. Eyes large. Proboscis dark at the apex, reaching to the second pair of legs. Prothorax dark greenish with black collar, and with a blunt papilla on each side. Abdomen with a large papilla on each side between the mid and hind legs and a smaller one between the cornicles and cauda. Cornicles black, rather long and cylindrical, markedly imbricated, but less so at the apex, reaching to or past the tip of the cauda, as long as or slightly longer than the third antennal segment. Cauda black, spinose, with three pairs of lateral hairs, curved at their apex, especially the apical pair, varying from one-third to more than one-half the length of the cornicles. Anal plate black, with two long hairs on each side of the cauda. Legs moderately long; femora dark, except at the base; tibiae pale, except at the apex, hairy; tarsi dark. Wings tinged with brown; stigma deep yellowish-brown to smoky, veins yellowish brown; cubitus ochreous; insertions yellowish to yellowish green. Length, 1.5–2 mm.; wing expanse, 8–8.5 mm.

Apterous viviparous female.—Dark olive-brown to black, with darker abdominal bars and spots; skin with marked reticulations, each having a central spot. Antennae

dark, except third to fifth segments, which are pallid yellow; base of femora and most of tibiae pale yellowish; rest dark. Head and prothorax narrower than rest of body; head rounded in front. Antennae shorter than body; basal segment larger than second; third longer than fourth, about as long as the sixth; fourth about as long as the fifth; the sixth with the basal area about half the length of the flagellum or a little more; all the segments faintly imbricated. Eyes large, black to dark brown, slightly separated from the base of the antennae. Proboscis dark at apex, reaching to second pair of legs. On each side of the pronotum is a prominent tubercle, and the abdomen has two lateral papillae between the mid and hind legs and a smaller one between the cornicles and cauda. Cornicles black, long, cylindrical, slightly expanding at the base, imbricated. Cauda black, spinose, with three pairs of lateral hairs, the apical pair prominently curved at the tips; from one-half to nearly one-third the length of the cornicles. Anal plate black, with two large hairs on each side. Legs with the femora black, except at the base, where they are yellow, tibiae hairy, yellow, except at the apex, which with the tarsi is black. *Length*, 1.8–2 mm.

Nymph.—“Obscure olivaceous, with two dusky areas, one on each side of the middle line. Head sparsely farinose. Eyes black. Antennal segments 1 and 2 olivaceous or smoky; 3 and 4 ochraceous; 5 ochraceous, with apex smoky; 6 black. Pronotum olivaceous, deeply compressed laterally, farinose. Mesothorax greenish, farinose; base of wing-buds greyish green, apices dusky or dark olivaceous. Abdomen olivaceous farinose, median line of a paler hue than general colour of abdomen. Cornicles and cauda black. In some specimens the abdomen is brownish between the cornicles. Femora dusky ochreous, apex dusky; tibiae ochreous, apex black; tarsi black.”—F. C. W.

EGYPT: Ghezireh, 16.iv.02; Gizeh, vii.09; Mehellet, Mousa, 22.iii.10 (*F. C. Willcocks*). BRITISH EAST AFRICA: Nairobi (*T. J. Anderson*).

Described from a series of alate and apterous females sent me by Mr. F. Willcocks. At first sight this species resembles *Aphis rumicis*, L., but the alate female can at once be told from that species by the sensorial structure of the antennae. In this species one never finds sensoria except on segment 3, and they vary from 3 to 6; in *A. rumicis* there are many on the third segment and some on the fourth and fifth. The lateral papillae also seem to differ. The specimens from Egypt were all found on beans and cow-peas, but in Nairobi it occurs also on *Gleditschia triacanthos*, an ornamental leguminous tree from America. In some respects it resembles *Aphis tavaresi*, Del G., but can at once be told by the fewer sensoria on the third antennal segment and its paler colour. Also the cauda has only three pairs of lateral hairs, the last pair of which are markedly curved at their apex. The brown clouding of the wing membrane also gives it a resemblance to *Aphis compositae*, described below, but it can be easily separated by the cauda in *compositae* having 6–7 pairs of lateral hairs. Moreover, it gives in alcohol a brighter port wine stain than any of the other blackish aphides. I have placed the specimens (mostly broken debris) from East Africa here, because on mounting the remains I found they agree with the specimens sent from Egypt. They gave a similar coloration in alcohol. Mr. Willcocks in his careful field-notes adds that this species may have the thorax and abdomen in the apterous female slightly polished, and that the most conspicuous feature is in the skin, which

is covered with reticulation, each space having a central spot. This I have found very marked in the spirit specimens sent me and the same showed in the East African ones. Also it appears from Mr. Willcocks' notes that some apterous females have the black transverse bars, which occur on the apical segments, merging into a blackish dorsal median area. The younger females, he says, are olivaceous and sparsely covered with a farinose secretion, which overlays the dark colour and gives them a slaty grey appearance, just as in *Aphis rumicis* when on broad beans.

***Aphis compositae*, sp. nov.** (fig. 17).

Alate viviparous female.—Head and thorax dark; abdomen paler (colour?). Antennae shorter than the body, dark brown all over; first segment a little wider but no longer than the second; the third longer than the fourth, but not as long as the sixth, with 14–18 sensoria on one side, reaching to the apex of the segment; fourth slightly longer than the fifth, the latter with a sub-apical sensorium at a little distance from the tip; the sixth as long as the fourth and fifth, its basal area about one-third the length of the flagellum; a few hairs on all the segments, which are imbricate or

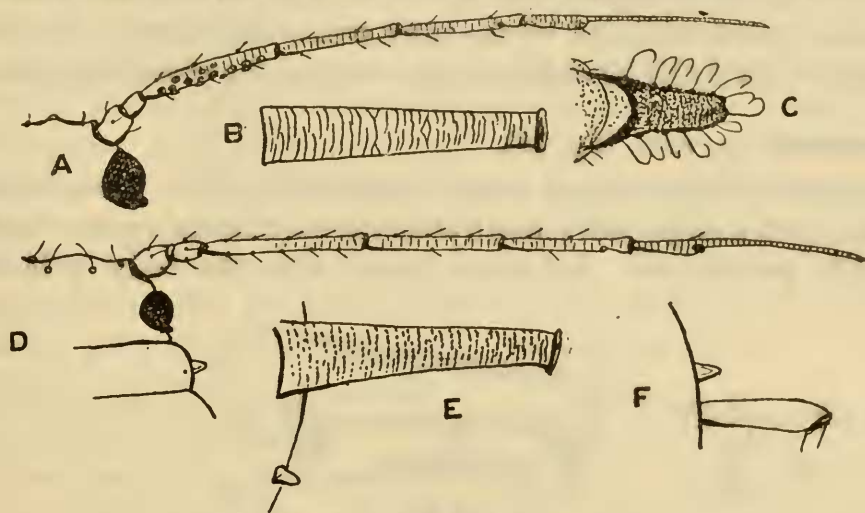


Fig. 17. *Aphis compositae*, sp. n.; A, antenna of alate ♀; B, cornicle; C, cauda. D, antenna of apterous ♀; E, cornicle; F, lateral papilla on abdomen.

striate. Eyes large, black; stemmata distinct. Prothorax with a papilla on each side. Abdomen with dark transverse bars, large dark lateral spots, and a dark area at the base of the cornicles. Cornicles black, about as long as the third antennal segment, cylindrical, or slightly expanding at the base, strongly imbricated and with some complete striae, which may be forked or variously branched. Cauda black, spinose, with several lateral hairs, which are curved at their apices, about half the length of the cornicles; anal plate black and spinose. Legs pale, with the apices of the femora and tibiae and the tarsi dark; tibiae hirsute. Wings tinged with brown, veins and stigma yellowish brown. The abdomen has a prominent lateral papilla before the hind legs, is slightly raised at the sides and bears a few moderately long hairs. Length, 2 mm.

Apterous viviparous female.—Black; antennae pale in the middle; tibiae and bases of the tarsi pale. Antennae shorter than the body; the first two basal segments dark, the first wider and very slightly longer than the second; the third and fourth

pale; fifth pale, except at the region of the sensorium and tip; sixth dark, especially on the apical half of the basal area and tip of the flagellum; third segment longer than the fourth and nearly as long as the sixth; fourth a little longer than the fifth; fifth with the sensorium at some little distance from the apex; sixth with the basal area about one-third the length of the flagellum. Proboscis dark at the apex, reaching just past the second pair of legs. Pronotum with a lateral tubercle on each side. A prominent tubercle on each side of the abdomen just before the hind legs and another between the cornicles and cauda; a few moderately long hairs. Cornicles black, imbricated, slightly expanding basally, about as long as the third antennal segment. Cauda black, similar to that of the alate female. Legs rather short and thick; femora and tibiae with long pale hairs and two on the tarsi, which are imbricated. Length, 2-2.5 mm.

BRITISH EAST AFRICA: Nairobi (*T. J. Anderson*).

Food-plants. Compositae (species unknown).

Described from 2 alate and several apterous ♀♀ preserved in spirit. A somewhat obscure species resembling *Aphis rumicis*, but distinguished by the different antennal structure in the alate female and by the more striate ornamentation of the cornicles. For comparison with *Aphis leguminosae*, sp. nov., see the preceding species.

***Aphis* (?) *cynarae*, sp. nov.** (fig. 18).

Alate viviparous female.—Head black; prothorax pale; thoracic lobes black; abdomen pale, with a large dark median area and dark lateral spots; cornicles short, brown; cauda pale brown. Antennae shorter than the body, pale brown; legs

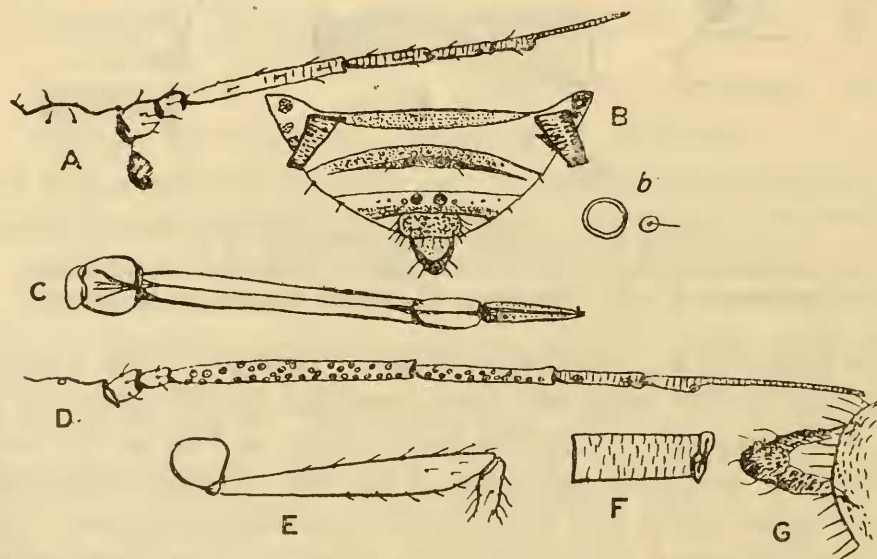


Fig. 18. *Aphis cynarae*, sp. n.;
A, antenna of apterous ♀; B, end of abdomen; (b) pore and
hair on abdomen; C, proboscis. D, antenna of alate ♀;
E, hind femur; F, cornicle; G, cauda.

pale, dark on apical half of the femora and the tip of the tibiae and the tarsi. Wings normal, with pale brown veins and stigma. Basal segment of the antennae a little wider but no longer than the second; the third the longest, with 35 to 50 sensoria scattered over its whole surface; the fourth half as long as the third, with 14-18

sensoria over its whole length, mostly on one side; fifth segment shorter than the fourth, with one large sub-apical sensorium and a smaller one below the middle; sixth as long as the fourth and fifth, its basal area about one-third the length of the flagellum; the fourth to sixth imbricated. Proboscis rather long and thin, reaching to the base of the third pair of legs; apical segment dark, rather narrow and pointed and longer than the penultimate segment. Cornicles rather short and cylindrical, faintly imbricated, a little longer than the cauda, which is bluntly cone-shaped, with two pairs of lateral hairs and slightly spinose, pale brown, darker at the edge; anal plate brown, hairy; two large round pores on the segment in front of the cauda, with a distinct hair on the outside of each. Femora and tibiae hairy. *Length*, 2.5 mm.

Apterous viviparous female.—Pale; head and pronotum bright brown; abdomen with transverse lines of small black specks and with broad brown median bars between the cornicles down to the tail; cauda small, pale, with dark brown edge; cornicles, legs and antennae brown, the tibiae being paler; proboscis thin, pale, except at the apex, reaching just past the second pair of legs, up to the third pair. Antennae less than half the length of the body; the basal segment much wider than the second, the third the longest; the fourth less than half the length of the third, and longer than the fifth; sixth as long as the fourth and fifth, its base less than one-third the length of the flagellum; third segment paler than the others. Proboscis as in the alate female. Legs rather thick, especially the femora; femora and tibiae hairy. The brown cornicles slightly expanding at the base, imbricated, longer than the cauda. Cauda brown apically, spinose, with two pairs of lateral hairs and one sub-apical dorsal one; anal plate brown, spinose and hairy. The segment in front of the cauda with two large median pores and a hair on the outer side of each, and two similar but smaller pores on the next segment. *Length*, 2.5–3 mm.

EGYPT: Gizeh, 27.iii.08 (*F. C. Willcocks*).

Food-plant. Artichoke (*Cynara*).

Described from a series of spirit specimens and slides. This species lives in the flower-heads of the globe artichoke. It might equally well be placed in *Siphocoryne*, except for the cornicles. The pores on the apical part of the abdomen are very marked. The colour cannot be given.

***Aphis punicella*, sp. nov.** (fig. 19).

Alate viviparous female.—Head black, slightly shiny; eyes brown. Antennae with two basal segments black; third pale at base, rest black; fourth, fifth and sixth black. Pronotum black, green in front and behind; thoracic lobes black and shiny. Abdomen green to dark green; cornicles black, with a conspicuous dusky area on the middle and slightly posterior to base of each cornicle; three prominent lateral black spots in front of the cornicles; cauda yellowish green. Insertions of wings yellowish; costa smoky; cubitus pale yellow; stigma smoky. Legs ochreous, apical half of third femora dusky; apex of first to third tibiae black; tarsi black. Anal plate dusky; sternal plate black. Head with small frontal processes, raised in the middle; two median incurved capitate hairs and one on each lobe curved outwards. Antennae shorter than the body; the basal segment a little wider, but no longer than the second; the third a little shorter than the sixth, with 6–9 sensoria over its whole length; the fourth a little shorter than the third and a little longer

than the fifth, with 0-5 sensoria; the fifth with a single apical sensorium; the sixth as long as the fourth and fifth, its basal area one-third the length of the flagellum; third to sixth imbricated. Proboscis reaching to near the second coxae, acuminate, the apical segment longer than the penultimate. Pronotum with a blunt papilla on each side. Cornicles long, but shorter than the third antennal segment, striate at the base, becoming imbricate and then practically unadorned at the apex. Cauda about half as long as the cornicles, with three hairs on each side. Anal plate with six prominent long hairs and a few others. Legs with pale hairs. *Length*, 1.2-1.5 mm.

Apterous viviparous female.—Pale yellowish-green to green; head dull yellowish green; eyes brown. Antennae with the two basal segments of the same colour as the head; the third pale ochreous, with smoky apex; the other segments smoky. Thorax and abdomen green and yellowish green; cornicles blackish; cauda pale ochreous. Legs pale ochreous. Apex of tibiae dusky; tarsi black; coxae greenish. Venter green or yellowish green. Antennae shorter than the body, the

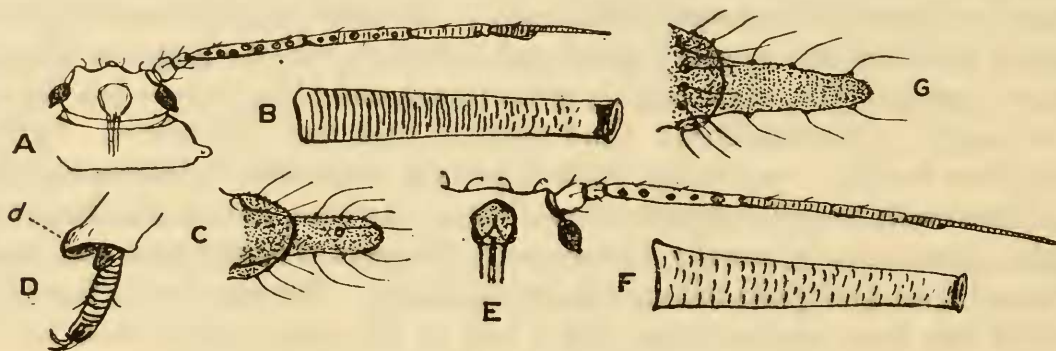


Fig. 19. *Aphis punicella*, sp. n.;

A, head, antenna and pronotum of alate ♀; B, cornicle; C, cauda; D, tarsus and cowl-like end of tibia (*d*). E, head and antenna of apterous ♀; F, cornicle; G, cauda and anal plate

basal segment larger than the second; the third a little shorter than the sixth and a little longer than the fourth, with 4-5 sensoria; fourth a little longer than the fifth, the latter with the usual sub-apical sensorium; the sixth a little shorter than four and five, its basal area nearly one-half the length of the flagellum; the sixth dusky. The dark cornicles slightly expanding at the base, nearly as long as the third antennal segment, imbricated. Cauda about half as long as the cornicles, blunt, with three hairs on each side and slightly spinose. The dark anal plate with three marked long hairs on each side. Legs shorter and thicker than in the alate female; apices of the tibiae prominently overlapping the basal tarsal segment on one side; tibiae with many hairs and a few on the apex of the femora. Proboscis nearly reaching the third pair of coxae. *Length*, 1-1.3 mm.

EGYPT: Gizeh, 29.iii.1909 (*F. C. Willcocks*).

Food-plant. Pomegranate (*Punica granatum*).

Described from spirit specimens sent me by Mr. Willcocks and his colour notes on this species. The apterae are very distinct, the third antennal segment having sensoria. The curious cowl-like ends to the tarsi, especially to the hind tarsi, are also very characteristic. The cephalic hairs are fine, short and slightly capitate.

This cannot be Passerini's *Aphis punicae* as he describes the apterous female as having the cornicles "mediocria alba apice nigra" and the antennae as "albae." His full description of *Aphis punicae* is as follows:—"Femina vivipara aptera ovato-oblonga, tumida, atro-viridis, albo-pulverulenta vel nuda. Antennae albae corpore breviores, oculi nigri. Abdomen prope marginem tumidulum impresso-punctatum, apicem versus pallidiusculum. Nectaria mediocria alba apice nigro, caudam albam duplo superantia. Long, $\frac{2}{3}$, $\frac{1}{2}$ '''."

***Aphis parvus*, sp. nov.** (fig. 20).

Alate viviparous female.—Dark. Antennae not quite as long as the body, brown; the two basal segments and the sixth somewhat darker; basal segment broader, but of the same length as the second; third segment longer than the fourth, but shorter than the sixth, with 7–10 sensoria along its whole length; fourth and fifth segments about equal, basal area of the sixth about one-third the length of the flagellum, all

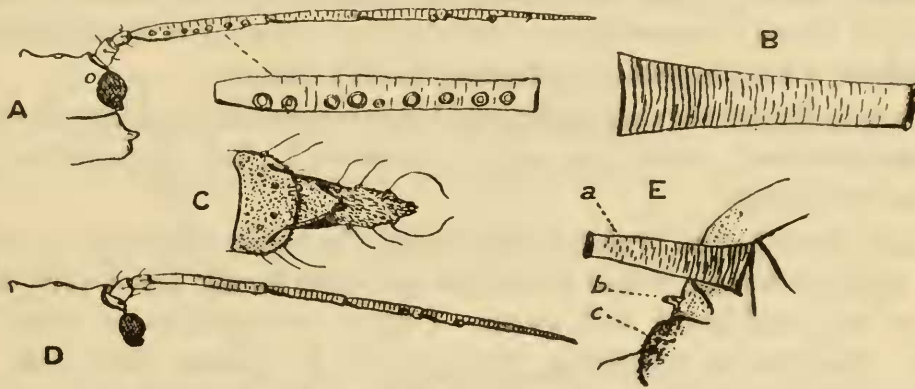


Fig. 20. *Aphis parvus*, sp. n.;
A, head, antenna and pronotum of alate ♀; B, cornicle; C, cauda and anal plate. D, head and antenna of apterous ♀; E, (a) cornicle, (b) papilla, (c) anal plate.

the segments striate or imbricate. Eyes large, red and black. Legs pale, with the apices of the femora and tibiae and all the tarsi dark; moderately long. Cornicles black, rather short and thick, markedly striate at the base, becoming imbricated, but unadorned at the apex; from about one-half to one-third the length of the third antennal segment. Cauda black, about four-fifths the length of the cornicles, and projecting far beyond them; bluntly acuminate, spinose and with three pairs of lateral hairs. Wings large, with pale brown stigma and veins. Proboscis reaching to the second pair of legs. Length, 1.2–1.5 mm.

Apterous viviparous female.—Antennae a little shorter than the body; two basal segments dark; third, fourth and fifth, except apex of latter, pale; sixth dark; basal segment broader but no longer than the second; the third a little longer than the fourth, but shorter than the sixth; the fourth and fifth about equal; sixth with the basal area one-third the length of the flagellum; all the segments finely or clearly imbricated to striated. Pronotum with a blunt papilla on each side. Proboscis reaching past the second pair of legs. Eyes red. Cornicles black, somewhat expanding apically, markedly striate at the base, then imbricated, the apex being unadorned. Cauda black, large, from one-half to two-thirds the length of the cornicles, projecting

beyond them, spinose, with three pairs of lateral hairs; anal plate black. A blunt papilla between the cornicles and cauda on each side. Legs pale, with the apices of the femora and the tibiae and tarsi dark. *Length*, 1.2–1.5 mm.

EGYPT: Ghezireh, 20.xi.07 (*F. C. Willcocks*).

Food-plant. Chrysanthemums.

Described from a number of alate and apterous specimens in alcohol. The colour cannot be given, but they were both of a dark hue, the body of the alate female being paler, probably greenish with dark lateral spots.

This might at first sight be mistaken for Koch's *Aphis chrysanthemi*, but it has only 7–10 sensoria on the third antennal segment in the alate female, whereas in *A. chrysanthemi* there are 22–28 sensoria, and the cauda is shorter and more rounded in that species, which is also considerably larger; my alate females measuring 1.8 to 2.5 mm. The chrysanthemum aphid of Koch is black and green and this has been taken to be the same species as *Aphis cardui*, L., by Buckton and Schouteden; both species certainly have a green and black abdomen dorsally in the alate female. As I have not yet found *chrysanthemi* on thistles and cannot get that species to breed on any *Carduus*, I am temporarily retaining Koch's species.

I have another British chrysanthemum aphid common on the ox-eye daisy (*Chrysanthemum leucanthemum*), which also might be *cardui*, L., but again it does not occur at any time on thistles.

Walker also describes an *Aphis chrysanthemi* (*Zoologist*, vii, App., p. lvi, 1849) in which the apterous female is dull green and the alate female has a very dark brown abdomen or only variegated with green. I fancy two species are mixed up in his description. Buckton in describing *Aphis cardui*, L., (*Mono. Brit. Aph.*, ii, p. 92, pl. lxxvii) says the young are green and that it is subject to variation in colour, some being bright golden yellow, with a variable black patch on the dorsum.

The other typical chrysanthemum aphid is *Macrosiphoniella chrysanthemi*, Del G. (p. 112). Buckton's *Siphonophora circumflexa*, which is a *Myzus* and not a *Macrosiphum*, is also common on these plants under glass, and *Rhopalosiphum diantha*, Sulzer, damages them. Out of doors one may find this last species and also *Aphis rumicis*, L., injuring chrysanthemums.

Aphis maidis, Fitch.

EGYPT: Gizeh, Cairo, on wheat (*F. C. Willcocks*).

Many apterous and some alate ♀♀, which agree with my American specimens.

Aphis laburni, Kalt.

Kaltenbach, *Mono. Pflanz.*, p. 85 (1843).

EGYPT: Gizeh, 1909, on young shoots of *Robinia* sp. (*F. C. Willcocks*).

I cannot separate these insects from the laburnum aphid of Europe.

Aphis medicaginis, Koch.

Koch, *Die Pflanz.*, p. 94, pl. xvii, figs. 125 & 126 (1857).

EGYPT: Ghezireh, 8.iv.09, on *Medicago* sp. (*F. C. Willcocks*).

Alate and apterous females.

Myzus tetrahodus, Walker.*Siphonophora rosarum*, Koch (*nec* Kalt. and Walk.).

Walker, Ann. Mag. Nat. Hist., (2) iii, p. 302 (1849); Koch, Die Pflanz., p. 180, pl. xxxiii, figs. 247–248 (1857).

EGYPT: Gizeh, Cairo, on roses (*F. C. Willcocks*).

This rose aphid is easily recognised by the capitate hairs on the head and body, and by its black cornicles. Buckton's *Siphonophora rosarum* is not the same as Koch's, nor is it Kaltenbach's, nor Walker's, which are the same. Walker's *Aphis tetrahodus* has black cornicles in the alate female just as Koch describes and figures for his *rosarum*, and I am sure they are the same (*vide* table of Rose Aphides, p. 112).

Myzus asclepiadis, Pass. (figs. 21, 22).*Aphis nigripes*, Theobald.

Passerini, Aphid. Ital., pp. 22 and 25 (1863); Theobald, Bull. Ent. Res. iv, p. 327, fig. 10 (1914).

UGANDA: Kitoma, 6.xi.13 (*C. C. Gowdey*). TRANSVAAL: Onderstepoort, 21.iv.14 (*G. Bedford*); Pretoria, 1.viii.13 (*G. Bedford*). ITALY (*Passerini*).

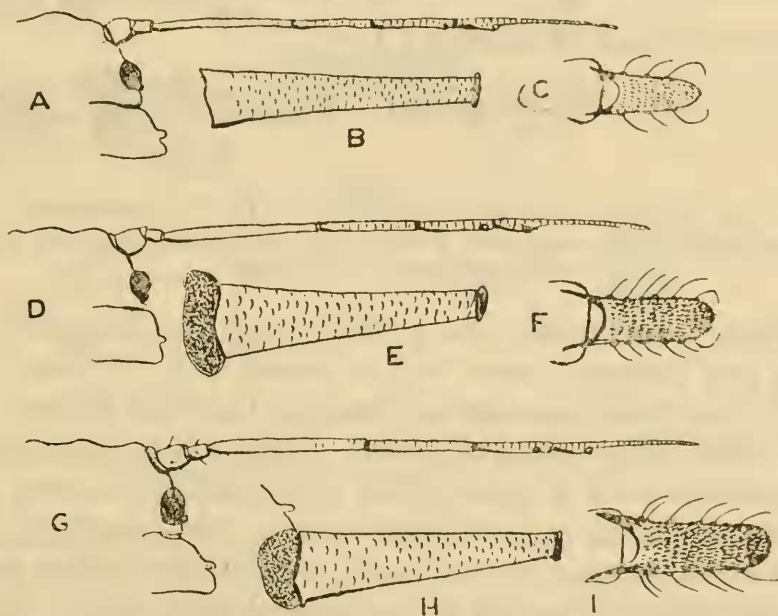


Fig. 21. Head, cornicle and cauda of: A–C, *Myzus nerii*; D–F, *M. asclepiadis*, G–I, *M. asclepiadis* var. *nigripes*.

Food-plants.—*Asclepias lunata*, *Gomphocarpus fruticosus* and *Salix* sp.

Schouteden and others have placed *A. asclepiadis*, Pass., as a synonym of *A. (Myzus) nerii*, Boyer. As the *Salix* aphid sent me by Mr. G. Bedford from Pretoria did not agree with *A. nerii* I described it as a new species. Since then I have had a similar aphid from *Asclepias lunata* and *Gomphocarpus fruticosus* and find that they agree with the *Salix* species so closely that I am uniting them. A large number sent me by Mr. Bedford from the *Gomphocarpus* (a plant used to adulterate senna) vary to some extent. This species is

yellow to yellowish green, mainly the former; that is, the same colour as *Aphis nerii*. The antennae of the alate female are black, and in the apterous female the third and fourth segments are pale, or the base only of each segment is pale; the cornicles are jet-black, as are also the cauda and anal plate; the hind legs are all dark, but the fore and mid legs have paler bases to the femora and most of the tibiae pale. In the form on *Salix* the colour is the same, but in the apterous female all the legs are dark, whilst in the alate female only the hind legs are all dark. In this form (*nigripes*, Theo.), the antennae of the apterous female may be all dark or pale at the base of the third and fourth segments. Both forms have a large dark patch at the base of the cornicles in alate and apterous insects. The third segment of the antennae in the alate female has from 6 to 11 sensoria and 0-1 on the fourth segment in specimens from Asclepiads; but in the *Salix* specimens the third has from 8 to 12 sensoria (fig. 22). The cauda has six to seven pairs of hairs on each side in both winged and wingless insects. On the pronotum is a blunt papilla on each side, also one between the cornicles and

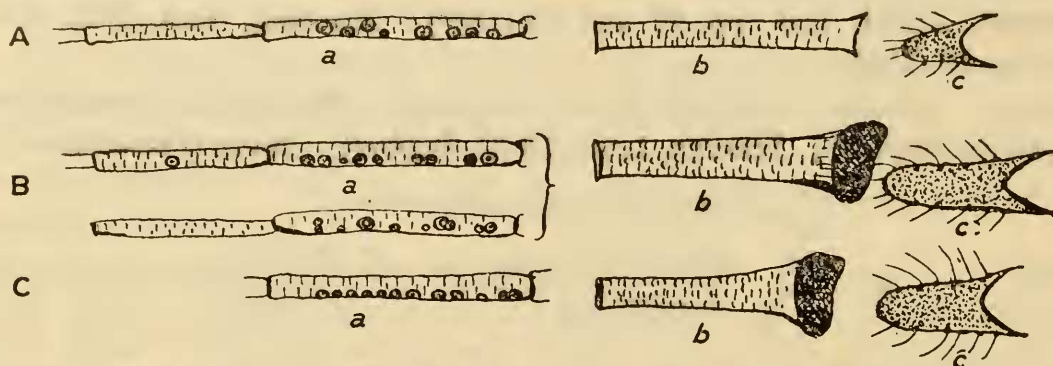


Fig. 22. A, *Myzus nerii*, Schr., alate ♀; B, *M. asclepiadis*, Pass.; C, *M. asclepiadis* var. *nigripes*, Theo.; (a), antennal segments 3 and 4; (b), cornicle; (c), cauda.

cauda. The yellow alate female has a black head and thoracic lobes, and the abdomen shows two darkened areas with a median paler division; the venter is yellow, except for the black mesosternal plate and the black coxae. The wings are slightly tinged with pale yellowish-brown; veins and stigma brown. On the abdomen there are four pairs of minute black specks and three dusky pairs of lateral spots. The apterous female has two black spots on the pronotum, a line of small black spots (seven in number) on each side, a black line before and behind the pronotum, and one uniting the first pair of small lateral spots. The antennae of the apterous female have the fifth segment shorter than the fourth.

In *A. nerii*, Boyer, the colour is the same and the insect has the same general appearance; but in the alate female the black cornicles are thinner and more uniform in size, the cauda has only 3-4 pairs of lateral hairs, and in both alate and apterous females I can see no trace of the black spots at the base of the cornicles; moreover, in the apterous female the fifth antennal segment is as long as the fourth, and the black cauda has only 3 to 4 pairs of lateral hairs.

It thus seems clear that Passerini was quite correct in placing the yellow Asclepiad aphid as a distinct species from that of the oleander (*Nerium oleander*). The nymphs in both species have black wing-pads and black lateral specks, as in the apterous females.

Genus *NEOTOXOPTERA*, nov.

Head with pronounced frontal lobes. Antennae in alate female longer than the body; third segment with sensoria. Wings with the first oblique vein once forked, as in *Toxoptera*; hind wings with normal venation. Cornicles fairly long, clavate. Cauda bluntly pointed, not as long as the cornicles. Eyes large.

This genus differs from *Toxoptera* in the long antennae and from *Rhopalosiphum* in the anterior wing venation.

Neotoxoptera violae, sp. nov. (fig. 23).

Alate viviparous female.—Black; abdomen yellowish brown, black around the margin. Head dark, broad; eyes large and black. Antennae about twice as long as the body, thin; first segment large; second small, both black; remainder of antennae paler; third segment longer than the fourth, with 20 to 25 sensoria spread over its whole length; fourth segment a little longer than the fifth, the latter with

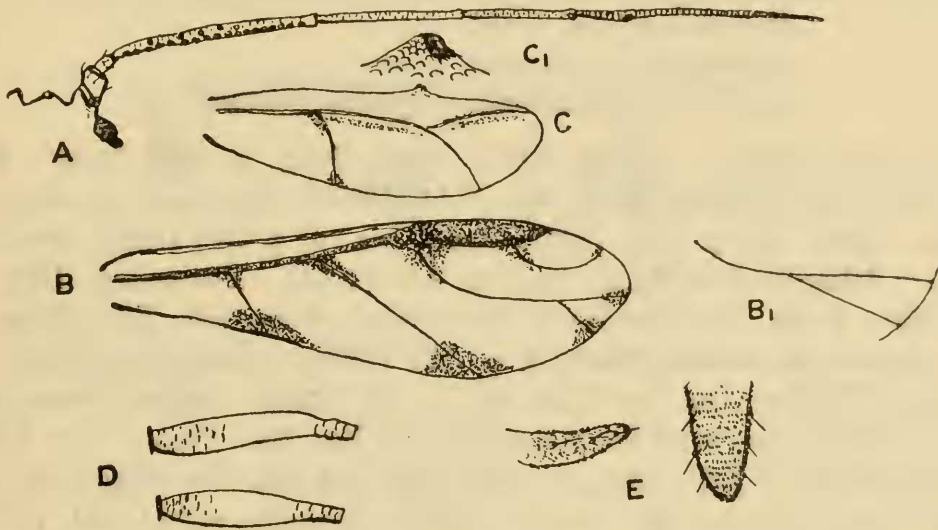


Fig. 23. *Neotoxoptera violae*, sp. n., alate ♀;
A, head; B, front wing; C, hind wing; C₁, hooked process on
hind wing; D, cornicles; E, cauda.

a single prominent sub-apical sensorium; sixth as long as fourth and fifth, the basal area half the length of the fifth; one large and several small sensoria at the junction of the basal area and flagellum; all the segments imbricated and with a few fine hairs. Proboscis rather narrow, pale, slightly dusky at the apex, reaching past the second pair of legs; the apical segment twice as long as the penultimate, base somewhat enlarged laterally. Legs long and thin; pale, except the apices of the femora and tibiae and all the tarsi, which are dusky black; tibiae hairy, a few hairs on the femora; tarsi and femora showing signs of imbrication; ungues dark. Wings ornamented with dusky brown areas, veins brown. Cornicles dark, fairly long, slightly clavate, flared at the tips, showing corrugations on the basal area, but no marked ornamentation apically. Cauda dark, bluntly pointed, spinose, with three pairs of lateral hairs, about half the length of the cornicles. Length, 1.5–2 mm.; wing expanse, 7–8.5 mm.

Apterous female.—"Dark reddish-brown. The young forms have a greenish grey head. Thorax and abdomen reddish, the last segment green."—*G. Bedford*.

TRANSVAAL: Onderstepoort, 24.vii.14 (*G. Bedford*).

Food-plant. Violets (*Viola* sp.).

Described from several alate females. It is a very marked and pretty species, which bears a strong superficial resemblance to Essig's *Rhopalosiphum violae* described from America, but the marked wing venation at once separates it, in spite of the fact that the ornamentation of the wings is very similar; it differs also in colour. Mr. Bedford writes that "the winged form was common for about two weeks. Then this aphid disappeared from the violets. I have not seen them since." The colours were noted when alive and also the colours of the young and apterae, none of which were sent me.

Chaitophorus populi, L. (fig. 24).

Aphis populi, L.

Aphis populeti, Panz.

Aphis populi-albae, Boyer.

Chaitophorus versicolor, Koch.

Arctaphis populi, Walk.

Chaitophorus leucomelas, Koch.

Chaitophorus leucomelas v. *lyratus*, Ferrari.

Linnaeus, Syst. Nat., ii, p. 736 (1767), Faun. Suec., p. 997 (1789); Reaumur, Ins., iii, pl. 26, figs. 7–11 and pl. 27, figs. 1–14 (1737); Fabricius, Sp. Ins., ii, p. 386 (1781), Ent. Syst., iv, p. 216 (1794), Mant. Ins. ii, p. 326 (1802), Syst. Rhyng., 298 (1803); Schrank, Fn. Boica, ii, 1, p. 113 (1801); Hausmann, Illig. Mag., i, p. 443 (1802); Rossi, Fn. Etrusc., p. 260 (1790); Samouelle, Ent. Comp., i, p. 4 (1819); Kaltenbach, Mono. Pflanz., i, p. 126 (1843); Ratzeburg, Forst. Ins., iii, p. 218 (1844); Walker, Ann. Nat. Hist. (2) i, p. 445 (1848); Panzer, Faun. Ins. Germ. xxvii, p. 18 (1812); Boyer de Fonscolombe, Ann. Soc. Ent. France, x, p. 187 (1841); Walker, Cat. Homop. Brit. Mus., p. 948 (1852); Koch, Die Pflanz., p. 10, pl. ii, figs. 14 and 15 and p. 4, pl. 1, figs. 5 and 6 (1857); Passerini, Aphid. Ital., p. 57 (1863); Ferrari, Spec. Aphid. Liguriae, p. 232 (1872); Buckton, Mono. Brit. Aphid., ii, p. 140, pl. lxxxii, figs. 3–5 (1877); Wittaczil, Denks. Akad. Wiss. Wien, p. 387, pls. i and ii (1884); Schouteden, Mém. Soc. Ent. Belg., xii, p. 213 (1906).

EGYPT: Gizeh, 3.i, and 31.iii.1910 (*F. C. Willcocks*).—Widely distributed in Europe.

Food-plants. *Populus albus*, *P. tremula*, *P. dilatata*, *P. nigra* and *Prunus* sp.

Mr. Willcocks found this *Chaitophorus* on the under sides of the leaves of *Populus albus* in Egypt in all stages and noticed that it produced considerable quantities of honey-dew at certain times; the upper surface of the leaves was black with *Melliola* sp., a saphrophytic fungus on the honeydew. There is no doubt that it is the European *Chaitophorus populi*, L., which is a very variable species as regards colour. The colours of the living insects are as follows:—

Alate viviparous female.—"Head shiny black; eyes very deep red to red. Antennae with 1st segment black, darker than 2nd; 2nd dusky or dusky ochreous; 3rd with basal $\frac{1}{3}$ dusky ochreous, rest black; 4, 5 and 6 black. Pronotum dark greenish, with broad shiny black prothoracic collar; mesothorax shiny, black; hairs pale. Wings with the costa dusky, cubitus yellowish, stigma black, veins ochreous; wing insertions yellow. Legs, 1st pair with femur and tibia ochreous or ochreous brown,

tarsi black; 2nd with femur black, tibia ochreous shaded at base, tarsus black; 3rd with femur black, tibia very dark brown to almost black, coxae and trochanters black. Abdomen green or very dark olive-green, heavily barred with black, with pale hairs. Cornicles black. Cauda grey or greenish yellow. Also five large lateral irregular-shaped spots between base of abdomen and cornicles, and a sixth spot below and posterior, but touching the base of the cornicle. Head, thorax, sternal plate and venter shiny black; apex and base of proboscis black, median area ochreous brown; abdomen dull darkish green, anal plate black. One small specimen had the head and pronotum blackish brown, thorax black and abdomen blackish brown, paler at sides and apex.

Apterous female.—"Head of varying shades of brown, from dark blackish-brown to bright reddish-brown or pale brownish-orange; shiny; hairs pale; eyes prominent, red. The head has two sub-median areas rather darker in hue, which are continued posteriorly over the thorax. Antennae with 1st segment dusky, 2nd dusky ochreous; 3rd ochreous, apical $\frac{1}{3}$ blackish-ochreous, darkening towards apex;

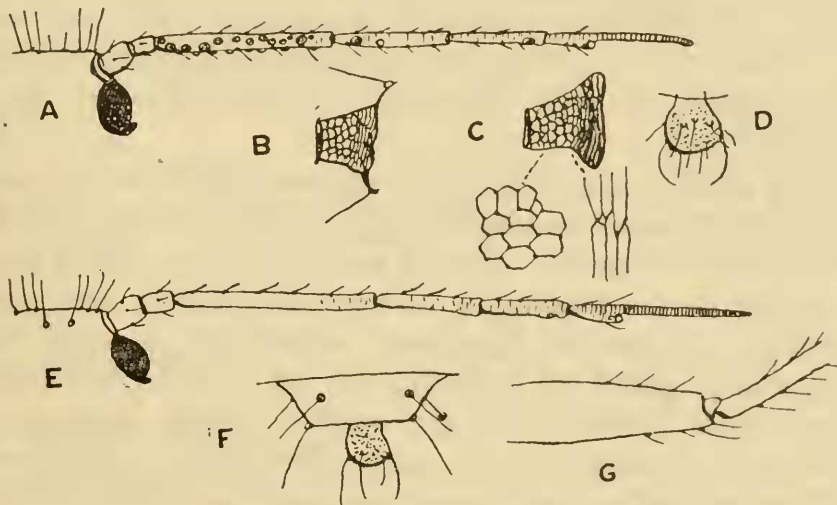


Fig. 24. *Chaitophorus populi*, L.;
A, head and antenna of alate ♀; B, cornicle; C, cornicle of
apterous ♀; D, cauda; E, head and antenna; F, cauda;
G, front femoro-tibial joint.

sometimes the 3rd segment is much paler; 4th, 5th and 6th black. Pronotum of the same colour as the head, shiny. Meso- and meta-thorax same as prothorax, but in some specimens the lateral margins are yellowish green; shiny; hairs pale. The brown of the thoracic region varies in hue from dark to reddish to light brownish orange. Abdomen shiny, dark brown, blackish brown or reddish brown, with paler and darker markings of the same colour. A large green or yellowish green patch in median area of basal $\frac{1}{3}$ of abdomen. Abdomen yellowish green or green at sides; apical segments yellowish green. Cauda yellowish green or faintly ochreous. Cornicles dusky to black, paler at the apex. Legs, 1st pair ochreous, tarsus dusky; 2nd femur blackish or dusky olivaceous, coxae dusky, tibia ochreous brownish at knee and dusky at apex, tarsi black; on 3rd legs, femur black, tibia ochreous, dusky to blackish brown, tarsus black. Underside of head brownish or orange; proboscis reaching beyond the 3rd coxae; thorax and abdomen dull greenish. Cauda dusky.

Young larva.—"Head brownish; eyes red. Two basal antennal segments dusky; 3rd pale; 4th and 5th black, base of 4 smoky. Pronotum brownish. Abdomen, meso- and meta-notum green, heavily mottled with purplish. Cornicles green. Legs green, with dark tarsi. Hairs on body pale.

Larva.—"Head and thorax reddish brown, or brownish orange; eyes dark red. Abdomen and mid thorax green or yellowish green mottled with reddish brown, purplish brown or purplish. Antennae with segments 1 and 2 dusky, 3 pale, dusky at apex; 4 and 5 black. Legs greenish, or 1st pair sometimes tinged with ochreous, tarsi dusky. In some specimens tibiae pale and femora only tinged with green.

Nymph.—"Head reddish brown; eyes deep red. Antennae with segments dusky, 2 paler, 3 pale, 4 pale with dark apex, 5 and 6 black. Pronotum of same colour as head; hairs on head and pronotum pale. Meso- and meta-notum green or obscure pallid greyish-green; position of thoracic lobes indicated by reddish or purplish colour. Wing-pads of same colour as meso- and meta-thorax. Abdomen bright yellowish-green mottled with dark or paler reddish-brown or dark purplish. In some specimens the head and thorax are light reddish-brown and the abdomen yellowish green and light reddish-brown. Underside of head and prothorax reddish brown; venter green; coxae green; proboscis reaching to 3rd coxae, very dark reddish-brown at base, median area pale, tip black. An active species. Found from 8th December to March."—F. C. W.

The antennae of the alate ♀ have the basal segment larger than the second, the third the longest, with 21–25 sensoria along its whole length; the fourth is a little longer than the fifth and has two sensoria, the fifth a subapical one; basal area of the sixth nearly half as long as the flagellum; all segments faintly imbricated, flagellum striated. Cornicles with marked hexagonal reticulation on apical half, then the reticulations gradually spread out laterally, until at the base the cornicle has linear ornamentation. Cauda globular. In the apterous female there are no sensoria on the third or fourth segments; hairs long, chiefly on one side of each segment; fourth and fifth segments often nearly equal, now and then the fifth a little the shorter. Cornicles as in alate female. The femora somewhat enlarged; legs with longish hairs in both forms.

These Egyptian specimens exactly agree with the European *C. populi*, except that in the latter I have not been able to detect the two sensoria on the fourth antennal segment of the alate female.

Callipterus ononidis, Kalt. (figs. 25, 26).

Aphis ononidis, Kalt.

Charitophorus ononidis, Koch.

Myzocallis ononidis, Pass., Ferrari.

Charitophorus maculatus, Buckton.

Callipterus trifolii, Monell.

Kaltenbach, Ent. Zeit., iii, p. 173 (1846); Koch, Die Pflanz, p. 5, fig. 7 (1857); Passerini, Aphid. Ital., p. 53 (1863); Ferrari, Aphid. Liguriae, p. 75 (1872); Buckton, Ind. Mus. Notes, iv, p. 277, pl. xvii, fig. 1 (1899); Monell, Can. Ent., p. 14 (1882); Williams, Spec. Bull. 1, Univ. Nebr. Dept. Ent., p. 8 (1891); Osborn, Proc. Iowa Ac. Sci., i, pt. 2, p. 129 (1892); Osborn and Serrine, Proc. Iowa Acad. Sci., i, pt. 3, p. 98

(1893); Sanderson, Twelfth Ann. Rept. Del. Agri. Exp. Sts., 1900, p. 207 (1901); Sanborn, Kansas Univ. Sci. Bull., 3, no. 8, pp. 251, 252 and 262 (1906); Davis, Ann. Ent. Soc. Amer., i, p. 256 (1908); Folsom, Bull. 134, Ill. Agri. Exp. St., p. 175 (1909); Davis, Journ. Econ. Ent., iii, p. 419 (1910); Gillette, Journ. Econ. Ent., iii, p. 369 (1910); Smith, Ann. Rept. N.J. State Mus., 1909, p. 116 (1910); Williams, Univ. Studies, x, no. 2, p. 32 (1911); Morrison, Fifth Ann. Rept. St. Ent. Ind., 1911-1912, p. 216 (1912); Davis, U.S. Dept. Agric. Bur. Ent., Tech. Ser. no. 25, pt. ii, p. 40 (1914).

Alate viviparous female.—Head very pale greenish-ochreous to pale yellowish-green. Eyes red, reticulations pale, somewhat ochreous; four dusky tubercles arranged as shown in fig. 25 (A), rather inconspicuous, between the bases of the antennae. Two dusky lines in the median area of the head. Antennae with the

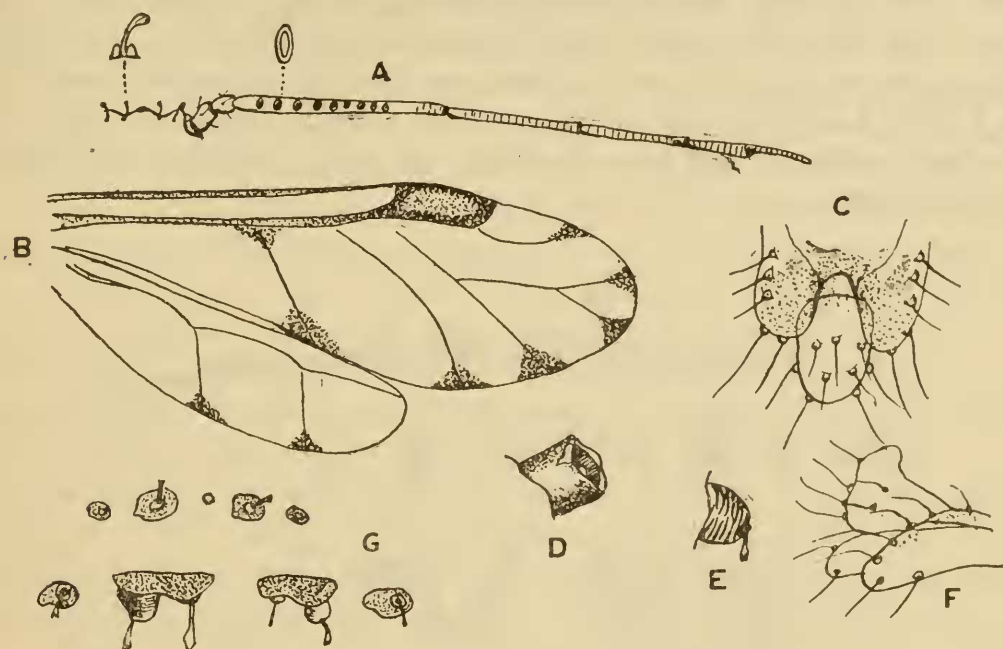


Fig. 25. *Callipterus ononidis*, Kalt., alate viviparous ♀; A, antenna; B, wings; C, cauda and anal plate; D, cornicle; E, lateral tubercle of abdomen; F, side view of cauda; G, body spines.

two basal segments pale or pale smoky, third ochreous with dusky apex, fourth to sixth dusky. Pronotum of the same colour as head, with some dusky lines. Mesothorax pale, but dull ochreous or greenish (darker in some specimens than in others), rather translucent in appearance. Thoracic shields of the same colour, but darker. Abdomen a clear, bright, pale yellowish green or greenish yellow, with black spots; a lateral line of seven black spots, one being close to or against the anterior margin of the cornicles. Cauda and the anal plate of the same colour as the abdomen. Cornicles pale, a dusky ring at the apex. Wing insertions pale; costa smoky, pale at the base; cubital vein with basal one-third pale, the rest smoky or faintly greenish; stigma pale smoky. Legs ochreous; tarsi dusky. Venter pale yellowish-green; underside of head and thorax slightly more yellow. Antennae not as long as the body, of six segments, the first slightly longer and wider than the second; the third the longest, with eight to nine oval sensoria, not quite reaching the apex; fourth and fifth about equal in length, the latter with

a single sub-apical sensorium; the sixth about as long as the fifth, its basal area as long as, or a little longer than, the flagellum; fourth to sixth and apex of the third imbricated; the fifth and sixth almost annulated. Head with a small blunt median swelling and slightly raised on each side at the base of the antennae, with short, rather thick clavate hairs. Proboscis reaching a little past the base of the first pair of legs, rather thick and dusky at the apex. Wings about as long as the whole body, rounded apically, with ornamentation as in fig. 25 (B). The moderately long legs show no special peculiarities, except that the second pair are far behind the first and very close to the third, and that the tarsi are very dusky and sometimes the apices of the tibiae also; the latter have small pale hairs. Cornicles small and showing no special ornamentation. The cauda markedly bilobed, each lobe with two long hairs on the apex and three on the outside, arising from prominent tubercles. Anal plate pale, globular at the apex, projecting beyond the cauda and between the lobes, with some long hairs arising from marked tubercles. In balsam the abdominal spots each have a central clear area, from which arises a small tubercle bearing a thick hair expanded at the apex, of various forms; the black lateral tubercles each carry a thick hair expanding apically. *Length*, 2-2.5 mm.; *wing expanse*, 5-5.5 mm.

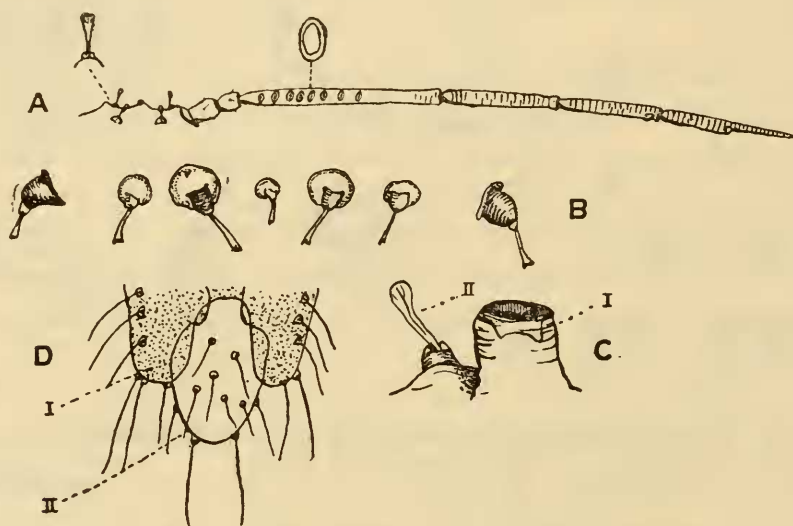


Fig. 26. *Callipterus ononidis*, Kalt., apterous
viviparous ♀;
A, antenna; B, body hairs; C, (I) cornicle;
C (II), body hair; D (I), cauda; D (II), anal plate.

Apterous viviparous female.—Uniformly ochreous to pale greenish-yellow, covered with dusky tubercles from which arise strong hairs with expanded apices. Eyes red. Antennae with segments one to three yellowish, fourth dusky ochreous, shading to dusky apically, fifth and sixth dusky. Legs ochreous, tarsi dusky. Cornicles short, of same colour as body, with dusky apical ring. Cauda of same colour as body. Head with capitate hairs. Antennae shorter than the body; the first segment longer and slightly wider than the second; the third the longest, with seven to nine oval sensoria, not extending to the apex; fourth and fifth nearly equal; the sixth about as long as the fifth, its basal area as long as the flagellum; fourth and fifth imbricated; sixth more or less annulated. Proboscis reaching

past the second pair of legs, dusky at the tip. First and second pair of legs close together, the third further away. Cauda as in the alate female. *Length*, 2 mm.

Larva (young).—When newly born, faintly tinged with green; dusky tubercles and bristle-like hairs arranged in four rows. Eyes bright red; legs and antennae pale. Older larvae pale yellowish-green, with dusky tubercles and hairs arranged in six rows. Legs faintly greenish; tarsi smoky. Eyes red. Antennae with the two basal segments pale yellowish-green; third pale and faintly smoky towards apex; four to six smoky. *Nymph* uniform pale yellowish-green. Cornicles with dark apical ring; tubercles dusky. Fore wing-buds shaded. Femora pale yellowish-green; tibiae ochreous; tarsi dusky. Eyes red. Antennal segments 1 and 2 pale yellowish-green, 3 and 4 pale, 5 and 6 smoky.

Alate male.—Head and thorax olive-green; abdomen pale yellowish-green, with conspicuous black markings. Similar to alate female, but smaller, with more slender body and the dusky tubercular areas on the dorsum of abdomen smaller. Head and thorax with a number of hairs arranged more or less regularly. The cephalic and thoracic hairs are unknobbed or but inconspicuously capitate, and those on the abdomen may also be capitate or not, being usually inconspicuously knobbed. Eyes dark red or blackish. Antennae dusky to black, reaching a little beyond the tip of the abdomen; third segment with 13 to 16 oval sensoria, more or less in a row; the fourth with three to five; the fifth with three to five, not including the usual distal one; and the sixth with one sensorium surrounded by several smaller ones at the tip. Proboscis not reaching the second coxae. Venation as in the alate viviparous female. Cornicles and cauda dusky, the latter edged with black; form as in the viviparous generation. *Length*, 1.3 mm.; wing expanse, 4.1 mm.

Oviparous female.—Apterous, general colour yellowish orange to orange when fully mature. Body usually yellowish when first reaching maturity, but as the ova, which are of an orange colour, begin to develop within the body they show through the semi-transparent skin, giving the conspicuous orange colour to the body.* Head and prothorax pale yellow; meso- and meta-thorax varying from yellow to orange according to age. Dusky tuberculate areas conspicuous. These and the black capitate hairs arranged as on the stem-mother. Eyes blackish or brownish black. Antennae not reaching the base of cornicles; basal segments concolorous with head, others gradually darkening toward apex. Legs pale yellowish, except tarsi; proximal halves of hind tibiae swollen and bearing 25 to 40 inconspicuous, irregularly placed, circular sensoria. Cornicles and cauda concolorous with abdomen, often dusky at margins. Cauda knobbed as in other forms, but the anal plate rounded at the tip and with no emargination. *Length*, 1.8 mm.

EGYPT: Kafr Zayat, 30.v.1910 (*F. Smith*); Gizeh, 2.vi.1910 (*F. C. Willcocks*). Also occurs in Europe, North America and India.

Food-plants. Berseem (*Trifolium alexandrinum*), *T. pratense*, etc., *Ononis spinosus*, *Medicago sativa*.

Redescribed from material sent me by Mr. Willcocks from Egypt, together with his colour notes from living specimens. The colours of the Egyptian specimens

* In the American specimens sent me by Davis the ova in the females were black.

agree exactly with those of this insect I have found in England on Rest Harrow. The structural notes are from Egyptian, American and English specimens. It is a very marked species; the apterous females have the whole body studded with dark patches from which strong, apically expanded hairs arise. Willcocks found this aphid on the under side of the leaves of berseem and noticed that it formed a great quantity of honeydew.

Davis in his recent paper gives Buckton's *Chaitophorus maculatus* from India as a synonym of Monell's *Callipterus trifolii* and suggests that both may be the same as the European *ononidis*. I have not seen Indian specimens, but Davis has compared them with *trifolii*, Monell. The American specimens of *C. trifolii* which I have exactly agree with the African and European species and thus I have sunk it as a synonym of *ononidis*. The American specimens have the cornicles of just the same shape as the Egyptian, but both Buckton and Davis figure them slightly different; there is no doubt however that they are the same. The Indian food-plant is lucerne (*Medicago sativa*). In America Davis records *C. trifolii* on red clover (*Trifolium pratense*) and also reared it on white clover (*T. repens*), Alsike, English and mammoth clovers (all *Trifolium*); Das has found in India that the species called *maculatus* by Buckton lives on lucerne, but has never found it on *Trifolium*; just the reverse of what Davis finds in America. In England I have never seen it on *Medicago sativa*, but only on *Trifolium* and *Ononis*.

Genus SALTUSAPHIS, nov.

Head very large, a long space between the frons and the eyes, which are large and prominent. Thorax large, the segments well defined; prothorax very large in the alate female, large in the apterous female. Body rather narrow, scarcely wider than head and thorax in the alate female, slightly more swollen in the apterous female. Antennae of six segments in both forms; longer than the body in the alate female, as long or a little longer in the apterous forms. Legs short, with the fore and mid femora expanded. Cornicles small and cup-shaped, marked with lines of spots. Cauda in both forms bifid, each branch bituberculate. Body hairs either fan-shaped or sickle-shaped, except at the apex. Proboscis short, not reaching the second pair of legs, which are widely separated from the first pair. Wing venation very marked (vide fig. 27).

This genus is founded on the marked cephalic structure, the posterior wing venation and the marked cauda. It is peculiar in that the apterae have the habit of jumping or skipping as in the Collembola. Only a single species is known so far.

Saltusaphis scirpus, sp. nov. (figs. 27, 28, 29).

Alate viviparous female.—Colours of alate female when alive:—"Head dusky ochreous tinged with green, a broad median dusky line; eyes red. Antennae with 1st and 2nd segments dusky; 3rd black, basal $\frac{1}{2}$ paler; 4th to 6th black. Pronotum yellowish green, with a broad median greyish area cut and edged by dusky lines. Mesonotum obscure brownish, tinged with green; wing insertions yellowish green. Abdomen pale yellowish green, with dusky markings. Cornicles and cauda dusky. Legs, 1st pair with femora pale to ochreous, shaded with dusky hue, tibia ochreous, tarsi dark; 2nd and 3rd pairs with femora dusky, tibiae and tarsi as in first pair.

Costa pale; cubitus faintly greenish; stigma pale, dusky medianly, margin darker. The abdomen, in addition to the dorsal markings, has a lateral row of 6 dusky spots, 4 in front of and 1 at base of and 1 behind the cornicles."—(*F. C. Willcocks*).

Colour of spirit specimens pale yellowish to greyish brown with dark markings. Head broad and very large, flattened in front, with two small median prominences and slightly raised against the base of the antennae; sides long, straight, slightly

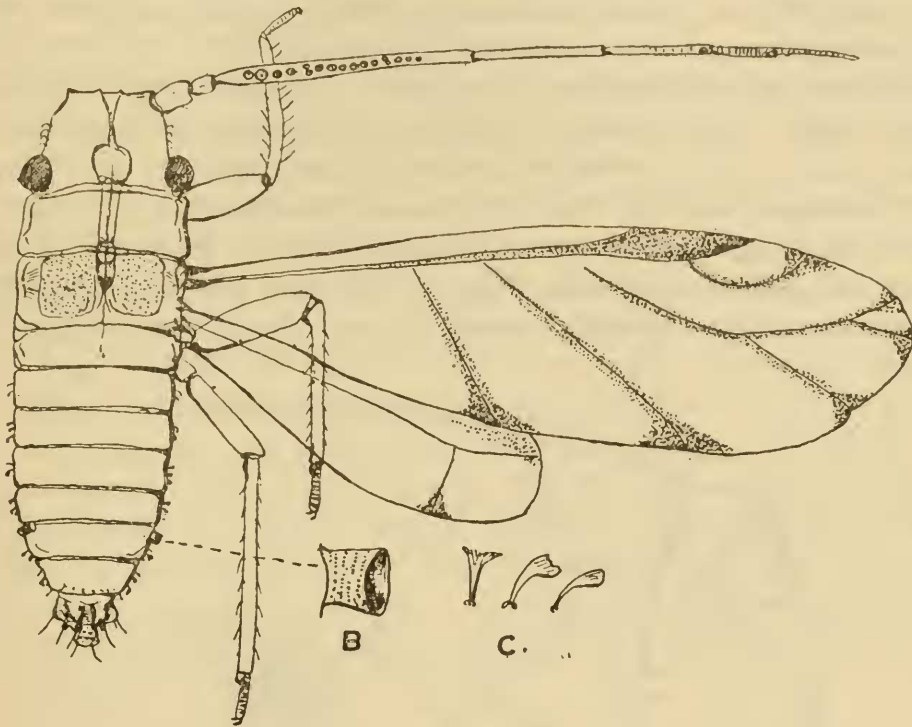


Fig. 27. *Saltusaphis scirpus*, sp. n., alate ♀;
B, cornicle; C, body hairs.

diverging, with a few sickle-shaped thick hairs. Eyes large and prominent, placed far back. Prothorax pale, broad; mesothorax dark brown, longer than the prothorax; metathorax brown, shorter than the two former segments. Abdomen somewhat pointed, about the width of the thorax, with small dark lateral spots and

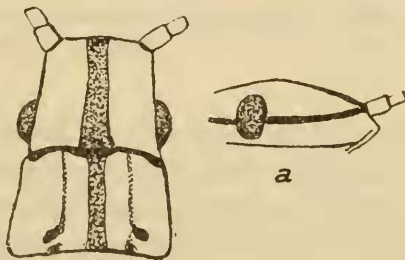


Fig. 28. *Saltusaphis scirpus*,
sp. n.; cephalic and pronotal
markings; (a) side view of
head.

pale brown transverse bars; two near, but in front of, the cornicles. Cornicles small and dark, cup-shaped and ornamented with minute lines of specks. Legs rather short, pale, darkened at the apices of the femora and tibiae, and with dark tarsi; the fore and mid femora thick; the second pair of legs far behind the first;

tibiae hairy. Wings with brown veins and stigma, the membrane tinged where the veins of the fore wings join the border; longer than the body and broad; venation as shown in fig. 27. Antennae longer than the body; first segment longer and slightly broader than the second; the third the longest, narrowing towards the apex, with a line of 15–17 sensoria along about two-thirds of its length from the base; fourth segment slightly longer than the fifth, the latter with the usual subapical sensorium; the sixth not quite as long as the fourth and fifth, its basal area nearly as long as the flagellum; all the segments from the third with minute black points instead of imbrications, apparently minute spines; the sixth, especially the flagellum, strongly annulated; the sensorium at the apex of the basal area of the sixth segment is single, large and round; some rather long lateral hairs on the first to fourth segments. Cauda very marked, bituberculate, each tubercle being dented at the apex and with two long hairs; general form shown in figure. Hairs of the body short, rather broad, fan-shaped and sickle-shaped. Proboscis rather short, not reaching the base of the second pair of legs. *Length*, 2 mm.; wing expanse, 5.5 mm.

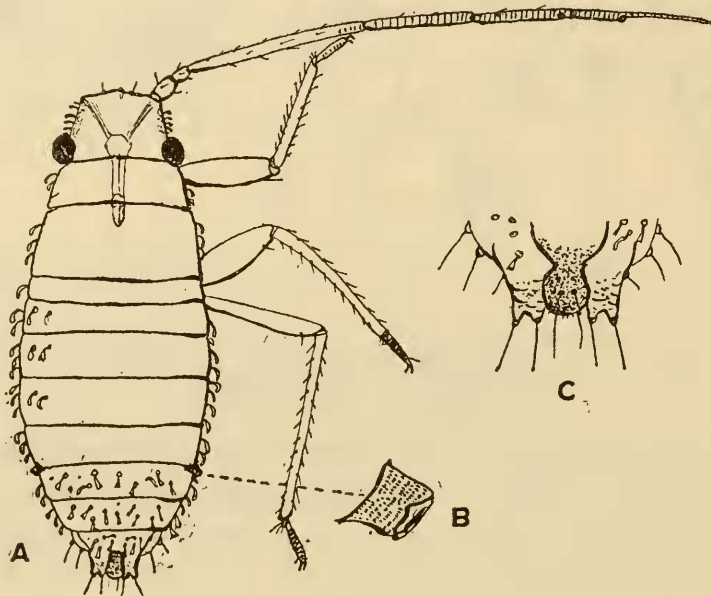


Fig. 29. *Saltusaphis scirpus*, sp. n.;
A, apterous ♀; B, cornicle; C, cauda.

Apterous viviparous female.—Colours of apterous female when alive:—‘Yellowish, with dusky and blackish markings. Head pale yellow, with broad median dusky lines and a dusky lateral line from the base of antennae to front margin of eyes and carried on for a short distance behind the eyes. Eyes deep vinous red to red. Antennal lobes and segments 1 and 2 paler yellow; segment 3 with the basal $\frac{1}{2}$ ochreous, apical $\frac{1}{2}$ black; segments 4, 5 and 6 black. Prothorax yellowish, with dark markings. Meso- and meta-notum speckled with dusky points on a dusky submedian irregular line of pigment. Abdomen yellowish, speckled with dusky spots, which become so thick near the cornicles as to give the appearance of an uniform dusky area in this region. Cornicles dusky, with dark apical ring. Cauda very small and yellowish. Legs yellowish; femora yellowish, tinged with dusky colour; tibiae yellowish; tarsi dusky. Proboscis very short. Underside of head

and thorax yellowish, venter of a greenish hue. There are two fleshy tubercles or processes on the dorsal surface of the penultimate segment. Body much flattened. Some are paler than others and the dusky areas are more intense."—F. C. W.

Pale yellowish-brown in spirit, speckled with black on the dorsum; dorsal line paler than the rest of the body and with three pairs of more pronounced black spots on the thorax. Head large, flattened in front; the sides long, straight, slightly diverging, with short, thick, sickle-shaped lateral hairs; the frons in some examples seems to be slightly projecting in the middle. Eyes large and black. Proboscis short, not reaching the second pair of legs. Antennae as long as or rarely slightly longer than the body, thin, of six segments; the first a little longer and wider than the second; the third the longest; fourth and fifth nearly equal; the sixth longer than the fifth, its basal area long, more than one-half the length of the flagellum; a single sensorium near the apex of the fifth and one at the junction of the basal area and flagellum of the sixth; apex of the third and all the fourth, fifth and sixth dark brown, the last three spinose and annulated. Thorax large and only a little wider than the head; prothorax large; mesothorax still larger; all three segments sharply defined. Abdomen narrow, of the same width as or slightly wider than the thorax; the segments well defined, especially those behind the cornicles; covered with large expanded hairs, some expanded apically, others sickle-shaped. Cornicles short, cup-shaped to bluntly tubular, pale, with fine speck-like ornamentation. Cauda pale, of somewhat similar form to that in the alate female, with some long hairs, which are slightly capitate; some hairs at the apex of the abdomen long and simple or slightly capitate, arising from prominent tubercles. *Length*, 2–2.5 mm.

EGYPT: Ghezireh, 3.v.10 (*F. C. Willcocks*).

Food-plant. Sedges (*Scirpus*).

This very marked aphid is described from a number of apterous females and two alate females. It is not only of very peculiar form and structure, but also is particularly noticeable on account of its jumping habits in the apterae. I have placed it in a new genus, as I know of no aphid with such an enlarged head or with similar venation in the hind wings. Mr. Willcocks describes it as a very shy species, and says that the antennae are held out in front of the head, resting on the surface of the leaf when the insect is at rest. It springs from the plants on the slightest alarm, and then moves to some little distance.

Anoecia willcocksii, sp. nov. (figs. 30, 31, 32).

Alate viviparous female.—Black and green. Head black, dull; hairs pale; eyes black. Antennae black or deep sepia-brown. Thorax black, with a few pale hairs. Abdomen pale green, with conspicuous deep sepia-brown markings (black to naked eye), *viz.*, 2 sepia bars at base of abdomen; from the middle area to cornicles a large, very deep sepia, almost black, area; two bars of same colour posterior to it; five pairs of dusky lateral spots in front of cornicles. Rings of cornicles black and shiny. Legs black, hairs pale; first femora ochreous at base. Venter green, farinose; under-side of head and thorax dull black. Wing insertions dusky, also veins. Head rounded in front, with rather long hairs. Eyes large and prominent; stemmata marked. Antennae as long as head and thorax; first two basal segments nearly equal, or first slightly larger; third longest, with 8 to 10 slit-like sensoria; fourth a little

more than one-fourth the length of third, with two oval sensoria on its apical half; fifth as long as fourth, with one large subapical sensorium; sixth longer than fifth, with short blunt nail, a single large sensorium at its base; long hairs on all segments. Thorax large; prothorax well defined, much narrower than mesothorax. Cornicles

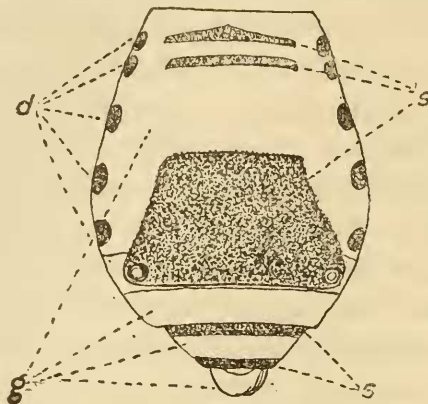


Fig. 30. *Anoezia willcocksii*, sp. n.; abdominal markings; (g) deep green; (s) deep sepia; (d) smoky black.

slightly projecting, obconical, dark, with hairs on the surface, opening round. Legs moderately long and thick; the tibiae and the tarsi hairy; the second pair a long way distant from the anterior pair and quite close to the third pair; unguis dark,

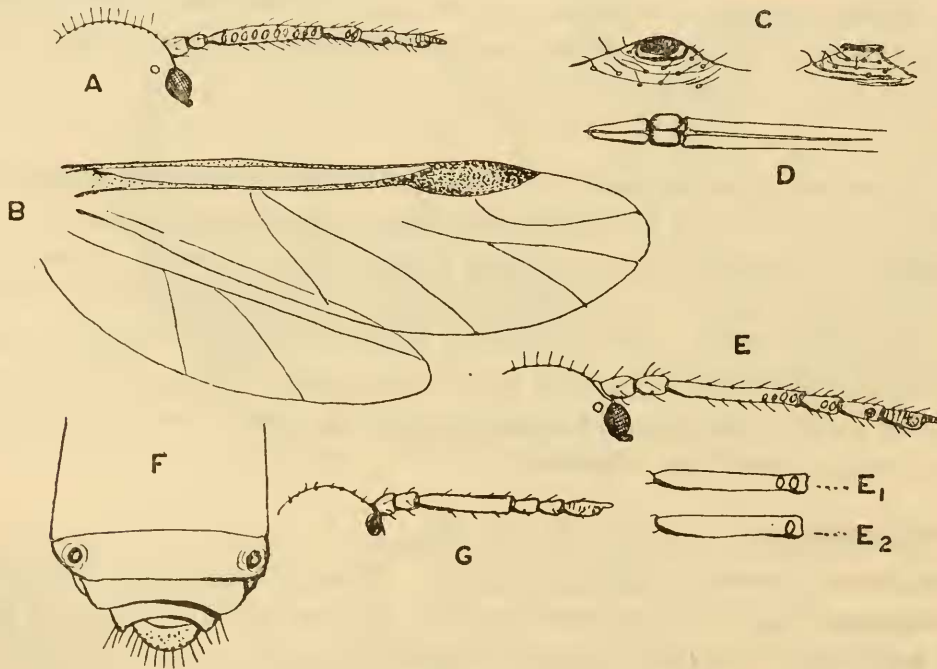


Fig. 31. *Anoezia willcocksii*, sp. n.
A, antenna of alate ♀; B, wings; C, cornicles; D, proboscis.
E, antenna of apterous ♀; E₁, E₂, variations in the sensoria;
F, end of abdomen; G, antenna of nymph.

normal. Proboscis reaching to the base of the third pair of legs, long and acuminate. Wings with brown veins and stigma; venation (fig. 31) normal. Anal plate dark, hairy. Abdomen with a few hairs and especially so between the cornicles and apex. Length, 2-2.5 mm.; wing expanse, 6-6.5 mm.

Apterous viviparous female.—Colour variable, majority pale green, rarely olivaceous. Head pale yellowish-green; eyes reddish. Antennae pale, slightly tinged with ochreous; sixth segment pale smoky. Thorax pale yellowish-green. Abdomen pale green, a few pale hairs on the sides and some rather longer apical ones. Legs faintly ochreous, tarsi smoky. Venter green, slightly farinose. Head rather small, slightly curved in front and hairy. Eyes large; stemmata small. Antennae not quite as long as the head and thorax; the first segment as long as the second, but a little wider; the third the longest, with 2–4 sensoria at the apex (in one specimen 4 on one antenna and 1 on the other); fourth about one-fourth the length of the third, with two sensoria on the apical half; fifth as long as the fourth with one large sub-apical sensorium; sixth longer than the fifth, with a small blunt nail with a single large sensorium at the base; all the segments with rather long hairs. Proboscis reaching to between the second and third pair of legs; apical segment dark, the penultimate wider and much shorter than the apical one. Thoracic segments all of much the same width. Abdomen with the sides parallel up to the cornicles where it bends in and terminates in a broadly based triangle; slightly hairy. Cornicles bluntly cone-shaped, with numerous hairs, dark. Cauda semicircular, dark and

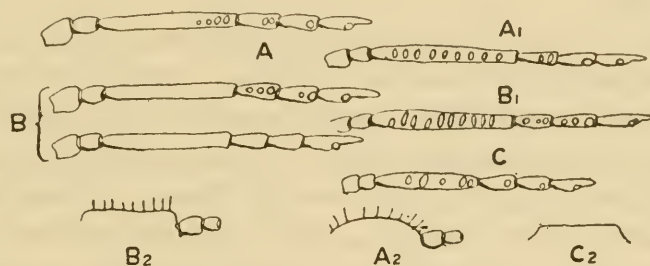


Fig. 32. *Anoeccia willcocksii*, sp. n.; A, antenna of apterous ♀; A₁, antenna of alate ♀; A₂, head of alate ♀.

A. corni, L.; B, antennae of apterous ♀; B₁, antenna of alate ♀; B₂, head of alate ♀.

A. panicola, Thos. C₁, antenna; C₂, head.

hairy; sides of the last segment with a pair of prominent hairs. Legs dark brown, about equally separated, rather short and thick; tibiae and tarsi hairy. Femora of fore and mid legs rather larger than usual. Length, 2.5–3 mm.

Nymph.—Head obscure pale yellowish; eyes dark; ocelli red. Antennae pale, faintly tinged with ochreous, two terminal segments pale smoky. Prothorax pale orange, also mesothorax. Base of wing-buds pale ochreous, tips dusky. Abdomen greenish yellow. Legs faintly ochreous; apical part of tibia faintly smoky; tarsi dark smoky. Underside of head and thorax pale orange, venter greenish yellow.

Larva.—Pale yellowish-green; eyes reddish. Antennae with 5–6 segments, base pale, apex smoky. Legs pale, tarsi dusky.

EGYPT: Gizeh, 29.iii.09 (*F. C. Willcocks*).

Food-plant. Wheat roots.

Described from several alate females, many apterous females and a few nymphae in which the wing-buds, antennae and legs seem paler, except the tarsi and apices of the antennae.

From the general body markings and shape of the alate and apterous females this insect resembles *Anoecia corni*, F., and *A. (Schizoneura) panicola*, Thos., but it clearly differs from both. From the European *corni* it differs in having sensoria on the third antennal segment in the apterous form and in generally having two on the fourth segment (not three), and one on the fifth (not two), and only the one large one at the base of the nail. In apterous *corni* I have never seen sensoria on the third segment, but in some there may be none on any segment except on the fifth and sixth. In the alatae the number of sensoria on the third is much the same, but in *willcocksii* there are two, not three, sensoria on the fourth, and on the fifth one large subapical one; whilst in *corni* there are two others. In the American *A. panicola*, the alate female, according to Hart's figure, has only five sensoria on the third segment and one only on each following segment.

This new species appears to be common on the roots of wheat in Egypt, but at present we do not know to what bush the alate females fly. As there is some variation in the sensoria in both alate and apterous forms in *corni* and the Egyptian species I might place them as one, but there is also a marked difference in the anterior form of the head; in the Egyptian species it is markedly rounded, in the European *corni* it is flat.

Amongst the colonies of green apterae Mr. Willcocks found a few specimens of darker olivaceous hue, which he describes as follows:—Head dusky grey, the greyness due to a mealy covering; eyes black; antennae with the two basal segments greyish; third with basal half pale, apical half smoky; fourth to sixth pale smoky. Prothorax olivaceous, with slightly greyish mealy covering. Meso- and meta-notum olivaceous, paler at the sides and between the segments. Abdomen olivaceous above, greenish laterally, highly polished; two apical bands of olivaceous green; numerous pale hairs along lateral margins and apex. Venter pale green, slightly farinose; hairs pale, most numerous on apex. Anal plate dusky. Spiracles surrounded by dark areas. Legs smoky, femora pale at base, tarsi dark. One specimen was quite dusky all over the dorsum and the sides green; they were not shiny, but otherwise resembled the type described, except that the olivaceous areas are replaced by a dusky hue.

Lachnus viminalis, Boyer.

Aphis viminalis, Boyer.

Aphis saligna, Sulzer, Walker.

Aphis salicina, Zett.

Aphis salicis, Curtis.

Lachnus dentatus, Le Baron?

Boyer de Fonscolombe, Ann. Soc. Ent. Fr., x, p. 184 (1841); Sulzer, Ins., pl. ii, fig. 6 (1761); Walker, List Homop. (B.M.), pt. iv, p. 959 (1852); Zetterstedt, Ins. Lapp., i, p. 311 (1840); Curtis, Trans. Linn. Soc., vi, p. 75, pl. v., figs. 1 and 2 (1800); Passerini, Aphid. Ital., p. 64 (1863); Ferrari, Aphid. Liguriae, p. 80 (1872); Buckton, Mono. Aphid. Brit., iii, p. 53, pl. xcix (1880); Muller, Eastbourne Nat. Hist. Soc., pp. 1–6 (1881); Theobald, First Rept. Econ. Zool. Brit. Mus., p. 116 (1903); Theobald, Journ. S.E. Agric. Coll., no. 14, pp. 126–132, fig. 36 (1905); Schouteden, Mém. Soc. Ent. Belg., xii, p. 207 (1906); Theobald, Rept. Econ. Zool. for 1912, pp. 96–98 (1913).

EGYPT: Salka, xi. 12 (*F. C. Willcocks*).

Food-plant. Willow (*Salix* sp.).

This large *Lachnus* agrees in all the essential characters with *L. viminalis*, which I have found in abundance in Britain and in parts of France, and I have no doubt whatever that it is the same species. It has been recorded from France, Norway, Italy and Belgium, and probably occurs all over Europe. Sulzer (1761) undoubtedly refers to this species, and Curtis (1800) described and figured this insect as an *Aphis* on willows.

This large species can at once be told by the curious horn-like process on the dorsum of the abdomen. Numerous interesting papers and notes have been written on it, the chief of which have been mentioned here. It undoubtedly has considerable economic importance in osier cultivation on account of the damage it now and then does, and its occurrence in vast colonies at certain times has given rise in the past to speculation as to its possible value as a sugar and dye producer; needless to say, it is of no commercial value.

Genus PROTOLACHNUS, nov.

Head large; eyes very prominent; the two stemmata of the alate female raised up and in front of the eyes; antennae thin, shorter than the body. Proboscis long, blunt, the last two segments short and equal. Body narrow and rather long. Cornicles circular, nearly flat. Legs long, especially the hind pair, femora and tibiae hairy, especially the hind tibiae; both tarsal segments long; coxae of the hind legs very large, especially in the alate female. Head with very long hairs, also the body, the hairs arising from prominent tubercles. Wings narrow, the first vein not arising from the subcostal and only once forked, very indistinct.



Fig. 33. Anterior wing of *Protolachnus tuberculostemmata*, sp. n.

The chief characters of this genus are the tuberculate stemmata in the alate female, blunt proboscis, greatly enlarged hind coxae and the wing venation.

Protolachnus tuberculostemmata, sp. nov. (figs. 33, 34).

Alate viviparous female.—Body very flat, green; thoracic lobes dark; antennae, ends of tibiae and tarsi brown. Head large, brownish ochreous, with four large slightly capitate hairs in front and two rows of four on the vertex, arising from tubercles; eyes large, projecting, black; stemmata in front of the eyes, pale, placed on a dark projecting area, having a tuberculate appearance. Antennae of six segments, shorter than the body, thin; first and second of the same colour as the head; third pale at base, the rest dusky; basal segment slightly wider than the second and of about the same length; the third the longest; the fourth half the length of the third and shorter than the fifth, both with a subapical sensorium, that on the fifth oval; sixth shorter than the fifth, with short blunt nail and two sensoria,

the apical one elongate; all the segments with a few short hairs and imbricated. Pronotum of the same colour as the head, farinose at side; thoracic lobes dusky and mealy. Proboscis reaching to third coxae, blunt, the last two segments rather small and equal; pale, tip black. Abdomen pale grass-green, speckled with black spots and with faint transverse bands; narrow, with rows of hairs coming from the darkened tubercles; cauda and anal plate pale, with rather long hairs. Legs pale; greenish femora, with dusky yellow tibiae, apices darkened; fore and mid pairs moderately long; coxae normal; hind pair very long, coxae large and thick, projecting well away from the body; tibiae very long and thin; tarsi dark, long, first segment half the length of the second; femora with short hairs; tibiae with long, thick, spine-like hairs on one side, smaller ones on the other and over the

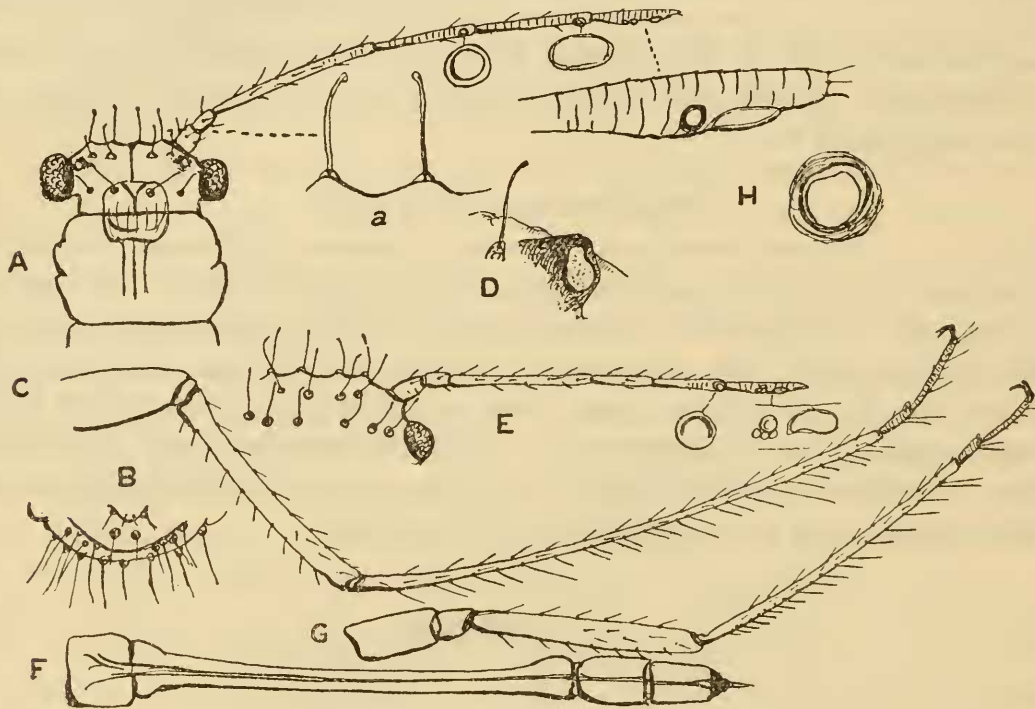


Fig 34. *Protolachnus tuberculostemmata*, sp. n.;
A, head, pronotum and antenna of alate ♀: (a) frontal hairs; B, cauda
and anal plate; C, hind leg; D, lateral stemmata. E, head and antenna
of apterous ♀; F, proboscis; G, hind leg; H, cornicle.

whole surface; a pair of long apical hairs on the basal tarsal segment and smaller ones on the other side and moderately long ones on the second segment. Wings with delicate stigma and veins, faintly greenish. *Length*, 1.5 mm.; *wing expanse*, 3.5 mm.

Apterous viviparous female.—Narrow; green to yellowish green, bearing dusky tubercles from which arise short stiff black hairs. Head nearly as wide as the thorax, adorned with hairs as in the alate female; eyes large, black, prominent. Antennae about half the length of the body, brown, paler at the base; basal segment very little wider than the second, of the same length; third segment the longest; fourth about half as long as the third; fifth a little longer than the fourth, with a large sub-apical sensorium; sixth shorter than the fifth, with a short blunt nail, one large sensorium on it and a group of smaller ones below; all the segments with a few moderately long stiff hairs; dusky, except the two basal segments, which are greenish;

basal area of third segment pale. Proboscis long, reaching past the third coxae; of similar shape to that of the alate female. Body pale green, with rows of stiff hairs arising from round dark tubercles. Cauda and anal plate pale, both semicircular, with long pale hairs. Legs pale yellowish-green or greenish ochreous, with dusky tips to the tibiae and dusky tarsi; fore and mid pairs moderately long; hind pairs very long, not so long as in the alate female, but well projecting from the body; femora with stiff hairs; tibiae with long dark spine-like hairs on one side, shorter ones on the other and over the surface; tarsal hairs similar to those on alate female. Cornicles round, only slightly raised above the surface. *Length*, 1–1.5 mm.

Larva.—Body yellowish green with dusky spots; eyes black. First segment of antennae pale, the rest pale smoky. Legs with pale femora, smoky tibiae and tarsi. Proboscis reaching well beyond the third coxae.

EGYPT: Gizeh, 22.vi.09 (*F. C. Willcocks*).

Food-plant. *Pinus* sp. (? Aleppo Pine).

Described from a single alate female and many apterae and Mr. Willcocks' colour notes from living specimens. It is a very marked species, which I cannot place in any described Lachnid genus, owing to its long, blunt proboscis, greatly enlarged hind coxae and wing venation. It feeds on the needles of a pine, which Mr. Willcocks says may be the Aleppo pine. It is a shy insect and can run in a very active manner. Types in the writer's collection.

***Pemphigus globulosus*, sp. nov.** (figs. 35, 36).

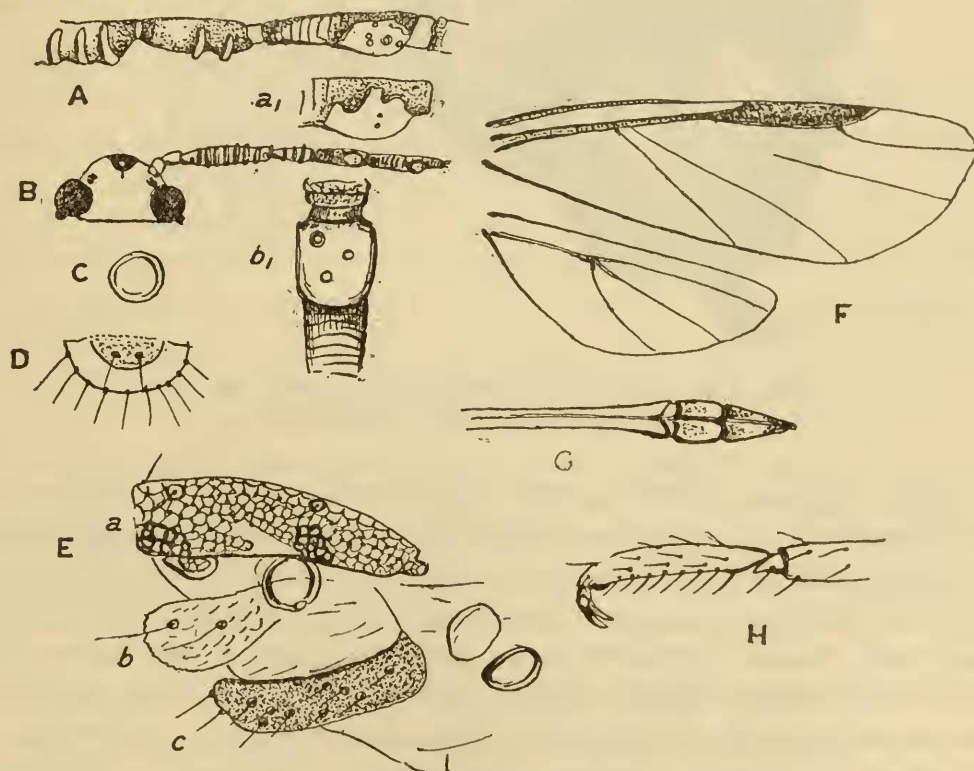


Fig. 35. *Pemphigus globulosus*, sp. n., alate ♀; A, 4th and 5th segments of antenna; A (a), further enlarged sensoria; B, head and antenna; B (b), sensoria of 5th segment; C, cornicle; D, cauda and anal plate; E, side view of (a) supra-anal plate; (b) cauda; (c) anal plate. F, wings; G, proboscis; H, hind tarsus.

Alate viviparous female.—Head dull black, mealy; secretion white or somewhat bluish white, imparting to the head more of a bluish black than dead black colour; eyes black. Antennae smoky black; second segment pale at base; pale at the joints. Pronotum of an obscure apricot colour and farinose, with a dark farinose ring. Mesothorax dull black, slightly polished in some examples; on account of the mealy covering the black appears as a blue-black rather than true black. Abdomen of a dull apricot colour and farinose, the mealiness being in zones, conforming more or less with the segmentation of the abdomen; junctures of segments not mealy or only slightly so; the farinose matter very abundant and conspicuous at the apex of the abdomen. Venter apricot and farinose, junctures of segments not mealy. Underside of prothorax apricot. Sternal plates brown to black. Legs smoky or smoky-black. Wings with dusky insertions; costa dusky or very pale smoky;

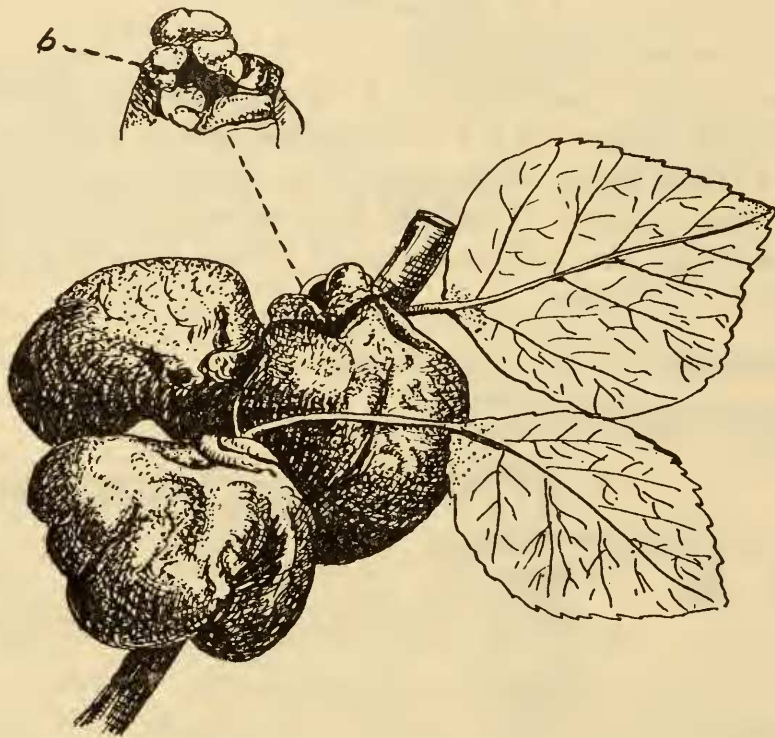


Fig. 36. Gall of *Pemphigus globulosus*, sp. n.
(b) opening of gall. (nat. size).

cubitus dark; stigma yellowish, with dark brown margin; obliques ochreous. Antennae about as long as the head and thorax, of six segments; the basal one of about the same size as the second; the third the longest, with 7–9 annulations; the fourth about half the length of the third, with 3 annulations; the fifth longer than the fourth, with a very large apical sensorium, base of the segment striated; the sixth a little shorter than the third, with a very small blunt nail and a large sensorium at its base, the rest striated, with a few short hairs at the apex. Frons rounded; eyes very large; median stemmata on a dark area. Proboscis short, not reaching the second coxae; apical segment a little longer and narrower than the penultimate. Cauda and anal plate rounded, the former small, with two hairs; the latter darkened at the apex, with many hairs. Cornicles small, flat, circular. Legs normal; tibiae with short hairs. *Length*, 2–2.5 mm.

Larva (at birth).—Colour orange; eyes dark. Legs and antennae very pale smoky. Length, 0.6 mm.

Nymph.—Pale yellow, rather a lemon yellow or slightly primrose; apex of abdomen with a tuft of white flocculent secretion. Head rather an obscure yellow, primrose. Eyes black, a prominent dusky spot on the eyes. Antennae pale. Thorax clear primrose yellow. Wing-buds yellow, of a slightly paler hue than the thorax, tips faintly shaded. Abdomen clear primrose yellow; a mass of white flocculent matter at the apex. Legs ochreous or an obscure yellowish smoky hue, sparsely covered with meal.

EGYPT: Near Tanta, Cairo and Mansourah, 16.v.1909 (*F. C. Willcocks*).

Food-plants. Poplar (*Populus* sp.).

Described from a number of alate females sent me by Mr. Willcocks and his colour notes from living specimens. The galls which I have figured (fig. 36) are very marked, being large irregular globular masses; in the specimen sent me three are united together. They somewhat resemble in form those of Tullgren's *Pemphigus lichtensteini*, but are formed by a clearly distinct species, as the fifth antennal segment has a very marked large sensorium, quite unlike that in Tullgren's figure (*Arkiv. für Zoologi*, v, p. 150, fig. 71a, 1909).

***Tychea phaseoli*, Pass. (fig. 37).**

Passerini, *Gli Afidi*, p. 39 (1860) and *Aphid. Ital.*, p. 81 (1863); Buckton, *Mono. Brit. Aph.*, iii, p. 90, pl. cxxviii (1882).

Alate viviparous female.—Head black, dull; hairs pale; eyes black. Antennae with segments 1, 2 and 3 black, 4, 5 and 6 paler, smoky in hue; the posterior part of the head may be an obscure greyish-green. Pronotum with anterior edge dark, darker still at sides; posterior portion obscure greyish-green; meso- and meta-notum black. Abdomen dull brownish-orange with a median longitudinal irregular brown area, extending from the third segment to the apex. This brown area is not regular, and shades into brown specks at the margins; posterior margins of basal segments distinctly green; apex dark; anal plate black; venter more or less obscure orange, slightly farinose, the mealy matter white; sternal plate black. Proboscis reaching the second coxae, the two apical segments black, base black, pale in middle. Legs: front pair black, hairs pale; median and posterior pairs also black, except apices of femora which are grey. Wings with dark smoky costa, blackish cubitus and smoky stigma; veins smoky; insertions of wings pale; in the second pair the cubitus is ochreous and the obliques pale; wings iridescent in some lights. When mounted in balsam the abdomen shows darker transverse bars behind and five small dark spots on each side. Antennae shorter than head and thorax, of six segments; basal one small, second more than twice as long, rounded at apex; third small, but slightly longer than the sixth, with eight sensoria, four large, the others smaller; fourth segment about as long as the fifth and as long as the second, with 2-3 sensoria near the apex; fifth with a single large subapical sensorium; sixth with a short blunt nail and sensorium at its base; all the segments with fine, rather long hairs. Cauda small, semicircular, with short fine hairs; anal plate with longer hairs. Mid pair of legs nearer to the hind than to the fore pair; hind tibiae slightly curved

outwards; tibiae and tarsi with numerous thin hairs, one large one at apex of femora; claws double on all legs. *Length*, 2.0–2.5 mm.; wing expanse, 8 mm.

Apterous viviparous female.—Globose; bright yellowish-buff to almost white, covered with white meal, sometimes scanty, at others sufficiently thick to give the insect a white miller-like appearance. Head hairy, brownish, mealy; eyes black, very small. Antennae with first to fourth segments ochreous, fifth and sixth smoky, or sixth only smoky. Thorax and abdomen uniform yellowish-buff to white; numerous pale hairs on the body. Venter of same colour as dorsum, mealy. Legs ochreous to pale ochreous brown, knees slightly darker. Antennae shorter than head and thorax, of five segments, the first a little smaller than the second; the third about as long as or slightly longer than the fifth; fourth small, about half the length of the fifth, with a single subapical sensorium; fifth with a very small

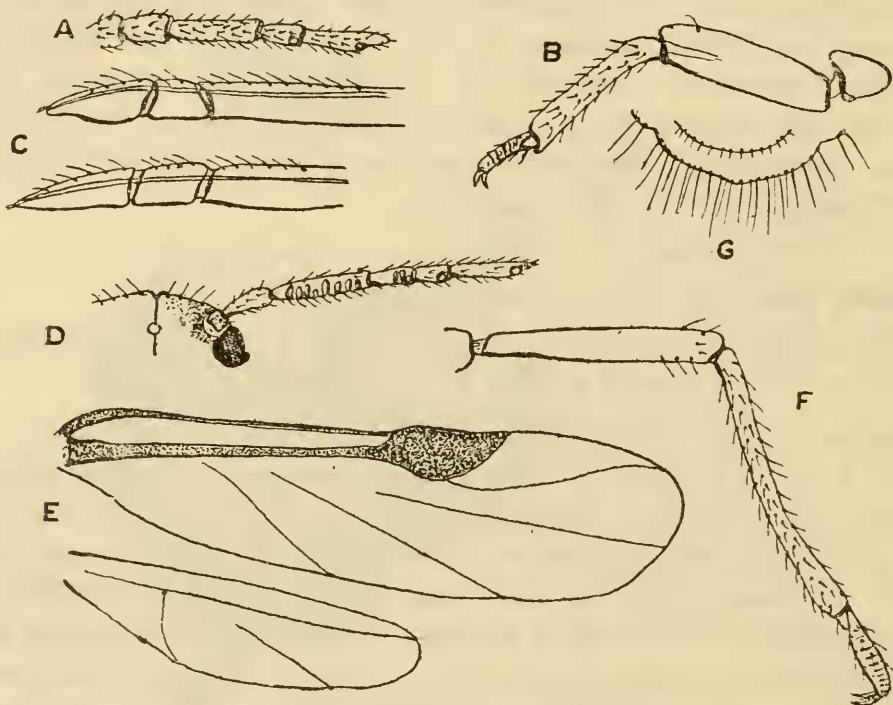


Fig. 37. *Tychea phaseoli*, Pass.;
A, antenna of apterous ♀; B, fore leg; C, proboscis. D, antenna
of alate ♀; E, wings; F, hind leg; G, cauda.

blunt nail; all the segments hairy. Proboscis pale, with dusky apex, reaching just beyond the second or to the third coxae; acuminate, apical segment longer and slightly narrower than the penultimate, with numerous hairs. Legs rather short and thick, the fore femora and tibiae nearly equal; in the hind legs, the tibiae slightly the longer; mid pair a little nearer to the hind than to the front pair; femora, tibiae and tarsi hairy. Apex of body densely hairy. *Length*, 1.5–2.5 mm.

Larva.—First stage bright orange; eyes black. Antennae and legs colourless, very glassy in appearance, hairs quite pale. Coxae orange. Proboscis with apical half colourless, basal half orange. Second stage bright orange. Head dusky, with very fine median line, halving the dusky area, which does not extend over the entire upper part of head; at the sides, around eyes and base of antennae the head is orange. The dusky area extends back to the pronotum, which has two lateral dusky

areas, all three, however, paler than the large central dusky area of the head. Eyes very small and black. Antennae pale, sixth segment pale smoky. Thorax and abdomen hairy, bright orange. Venter orange. Proboscis reaching well beyond third coxae, dark at apex, pale medianly, dusky at base. Legs pale, including tarsi; claws dark.

EGYPT: Ghezireh, 30.iv.09 and 5.v.08 (*F. C. Willcocks*). Occurring also in Italy, France, and Britain.

Food-plants. Bean roots, including French beans (*Phaseolus vulgaris*), broad beans (*Fabia*) and scarlet runners (*Phaseolus coccineus*); also *Brassica*, *Euphorbia* and *Amaranthus*.

The apterae from Egypt agree exactly with European specimens. The alate female of this species does not appear to have been described before. It is very marked both in antennal structure and wing venation (fig. 37). Willcocks sends a note saying that it occurs in very large colonies on bean roots in the Laboratory gardens, and that the alate females are produced in numbers. The young when born are quiescent, the limbs not being free, but only remain in that condition a very short time, soon becoming very active.

Rhizobius ?graminis, Buckton (fig. 38).

Buckton, Mono. Brit. Aph., iv, p. 93, pl. cxxix, figs. 9–14 (1882).

Alate viviparous female.—Head, antennae, thoracic lobes and legs black, the rest of the body olivaceous green, yellowish green or dull yellowish green, median dorsal area dusky grey. Head small, narrow in front, slightly indented in the middle; eyes large and black. Antennae not as long as the head and thorax, of six segments, with pale bands between the black segments; first small, irregular, broader than the second, which is semiglobular; the third slightly longer and narrower, constricted at the base, with one large apical sensorium; the fourth of the same length as or slightly shorter than the third, of similar form and with a large apical sensorium; the fifth a little longer and rather narrower than the fourth, narrowed at the base, with a single large apical sensorium; sixth the longest, with a short blunt nail and an elongate large sensorium. Proboscis short, thick, reaching nearly to or just past the first pair of legs. Wings iridescent, with yellowish green insertions and dusky costa; ochreous stigma, margin bottle-green; veins pale smoky, with smoky pigment outlining them; longer than the body; venation marked (fig. 38). Legs rather short and with small scanty hairs on the tibiae, a few on the apex of the femora and one on the tarsus; ungues double on each leg. Cauda dusky, small, the anal plate projecting beneath, with rather long hairs. Body nude. Venter ochreous green, slightly farinose laterally; prosternum smoky green; sternal plate black. *Length*, 1.8–2 mm.

Apterous viviparous female.—Entirely pale creamy white, pale buff or dull yellowish, except the legs, antennae and head, which are smoky; elongate oval. Head small, rounded in front. Antennae farinose, brown to smoky; very short, of five segments; the first four nearly equal in length; the first and second broader than the third and fourth; the fifth the longest, as long as the third and fourth and thinner, with a short blunt nail; a single large sensorium at the apex of the fourth and two at the base of the nail of the fifth. Proboscis short and thick, the three segments nearly

equal in length, reaching to the coxae of the second pair of legs. Legs very short and thick, the tibiae a little shorter than the femora, equidistant apart; claws double on each leg, no hairs visible. There are traces of darkness on the head of varied form in balsam preparations (but no rows of dark spots down the abdomen) and thin hairs. Cauda dusky, slightly hairy. *Length*, 1.8–2 mm.

EGYPT: Gizeh, 30.iii.09 (*F. C. Willcocks*). Also in Europe.

Food-plants. Wheat and various grass roots.

The structure of the apterous Egyptian specimens agrees with Buckton's *Rhizobius graminis*, which he described first as *Rhizobius poae*. The apterae do not show the black spots referred to by Buckton nor does Mr. Willcocks refer to them; but as the structure agrees exactly I feel sure the Egyptian species is the same as the European. Nevertheless I place it with a query. Alate *Rhizobius* have not so far been described, so that the winged viviparous female detailed here is the type of that genus.

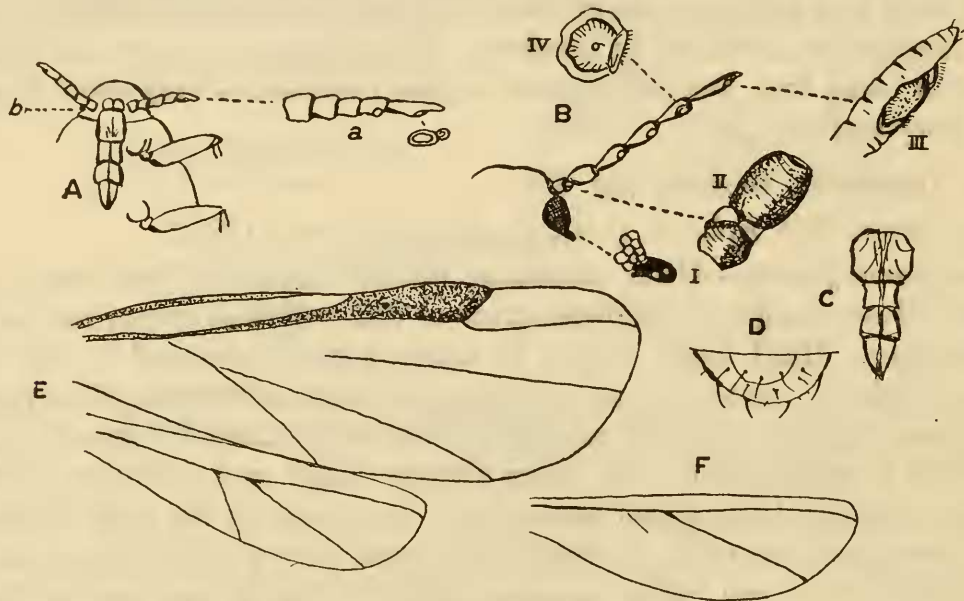


Fig. 38. *Rhizobius graminus*, Buckt.;
A, under surface of head of apterous ♀; a, b, antenna.
B, head and antenna of alate ♀; (I) ocellar process; (II) basal antennal segments; (III) apex of 6th segment; (IV) sensorium on 5th; C, proboscis;
D, cauda and anal plate; E, wings; F, abnormal lower wing.

Some of the specimens sent by Mr. Willcocks came from grass roots along a canal bank at Gizeh, the others from the roots of wheat.

Buckton describes the apterous female as "dull ochreous yellow. Eyes, antennae, legs and 2 occipital longitudinal bands, brown. Abdomen deeply ringed with numerous dark spots, ranged in transverse rows across the dorsum. A pale line passes from the vertex down the whole back." Buckton refers to the front tarsi as having a single claw, evidently in error. Willcocks describes the nymph as "yellow, wing-buds pale, eyes and ocelli red. Legs and antennae very pale smoky."

The females, larvae and pupae produce long filaments of a bluish-white secretion, like wool, from pores on the dorsum.

A second species seems to have been found by Willcocks in which the body is very globose and covered with numerous short hairs, farinose and buff in colour, and possibly a third species, but I am unable to isolate these.

*New Localities and Food-plants.***Macrosiphum rosae**, L.

Bull. Ent. Res., iv, p. 333, fig. 14 (1914).

EGYPT: Gizeh, 1907 and 1909, on roses, and Ghezireh, 25.iii.09 (red and green forms) (*F. C. Willcocks*).

Rhopalosiphum dianthi, Schrank.

Bull. Ent. Res., iv, p. 320 (1914).

EGYPT: Gizeh, 27.iii.13, on potato; 19.ii.10, on peach; iii.10, on apricot (*F. C. Willcocks*). TRANSVAAL: Onderstepoort, 28.vii.14, on tobacco (*G. Bedford*).

Aphis gossypii, Glover.

Bull. Ent. Res., iv, p. 321, fig. 5 (1914).

EGYPT: Gizeh, 19.xii.12, on maize.

Mr. Willcocks sent me slides of what apparently looked like two cotton aphids, one of which he called the large cotton aphid, the other the small cotton aphid, these having been taken together. On examining them I find they agree exactly in structure and there is no doubt they are both *Aphis gossypii*, Glover. The smallest alate females were only 1 mm. long, the largest 2.0 mm.

Aphis tavaresi, Del Guercio.

Bull. Ent. Res., iv, p. 323, fig. 6 (1914).

BRITISH EAST AFRICA: Kabete, 5.i.11, on Jamaican lime (*T. J. Anderson*).

The wings of the alate viviparous females are tinged with brown. This species gives a deep port-wine colour to alcohol.

Aphis rumicis, L.

Bull. Ent. Res., iv, p. 329 (1914).

EGYPT: Ghezireh and Marg, 31.iii.09 and 10.iv.09, on docks (*Rumex* sp.) and poppies (*Papaver*).—(*F. C. Willcocks*).

Aphis (Myzus) nerii, Boyer.

Bull. Ent. Res., iv, p. 329 (1914).

TRANSVAAL: Pretoria, 3.iv.14, on oleander (*Nerium oleander*).

Toxoptera graminum, Rondani.

Bull. Ent. Res., iv, p. 333, fig. 14 (1914).

EGYPT: Gizeh, on wheat (*F. C. Willcocks*).

Willcocks gives the colour as dark green, which does not agree with the usual colour, but I cannot separate his examples from the European and American specimens which I have.